# Environmental Conservation

*The DIC Group recognizes that it has a responsibility to help address environmental issues and is taking decisive steps to reduce its negative impact, thereby contributing to sustainability.*

## Climate Change

### Basic Philosophy

The DIC Group works to reduce $CO_2$ emissions over the entire life cycle of its products and, through its business activities, to lower risks associated with climate change.

### Initiatives Aimed at Preventing Global Warming

Climate change, a principal cause of which is global warming, is an increasingly pressing issue for the entire world. The Intergovernmental Panel on Climate Change (IPCC), the leading scientific body dedicated to the assessment of climate change, continues to paint a dire picture for the future of the planet as a result of climate change. At the 2015 United Nations Climate Change Conference (the 21st annual session of the Conference of the Parties (COP 21) to the United Nations Framework Convention on Climate Change (UNFCCC), participants adopted the Paris Agreement, a move aimed at accelerating efforts to tackle this urgent challenge.

As a manufacturer of fine chemicals, DIC recognizes that promoting efforts to curb global warming is a crucial management responsibility. The Company's medium-term sustainability policies thus include a pledge to reduce greenhouse gas emissions from its production facilities. To this end, DIC continues taking steps to reduce energy consumption and promote decarbonization, as well as to actively disclose the results of initiatives and obtain third-party verification of its $CO_2$ emissions data, as outlined below. In addition, 17 of the DIC Group's 32 sites (and 20 offices and research facilities) in Japan have been accorded Designated Energy Management Factory status.

1. Undertake energy-saving initiatives worldwide
2. Deploy effective strategies through working group activities
3. Operate energy-saving cogeneration systems (combined heat and electric power generating facilities)
4. Employ energy from renewable sources (biomass boilers, wind power and solar power) at suitable sites
5. Extend energy-saving initiatives to DIC Group companies overseas

### Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objective of initiatives | Goals for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Reduce emissions of $CO_2$ at sites (Scope 1 and 2). | DIC Group<br>1. Reduce $CO_2$ emissions by 7.0% from the fiscal year 2013 level by fiscal year 2020 (average annual decrease of 1.0%). | 1. $CO_2$ emissions: 617,964 metric tonnes<br>• Down 2.6% from fiscal year 2017 (634,741 metric tonnes)<br>• Down 14.5% from fiscal year 2013 (722,955 metric tonnes)<br><br>Reference:<br>$CO_2$ emissions per unit of production: 289.3 kg/metric tonne<br>• Down 2.3% from fiscal year 2017 (296.1 kg/metric tonne)<br>• Down 11.5% from fiscal year 2013 (327.0 kg/metric tonne) | ★★★<br><br>★★★ | Reduce $CO_2$ emissions by 30.0% from the fiscal year 2013 level by fiscal year 2030 (average annual decrease of 2.1%). |
| | DIC Group (Japan)<br>1. Reduce $CO_2$ emissions by 7.0% from the fiscal year 2013 level by fiscal year 2020 (average annual decrease of 1.0%).<br>2. Reduce energy consumption per unit of production 7.0% from the fiscal year 2013 level by fiscal year 2020 (average annual decrease of 1.0%). (Comply with Japan's Act on the Rational Use of Energy.) | 1. $CO_2$ emissions: 231,820 metric tonnes<br>• Down 5.1% from fiscal year 2017 (244,395metric tonnes)<br>• Down 5.1% from fiscal year 2013 (244,377metric tonnes)<br><br>2. Energy consumption per unit of production:<br>3.094 GJ/metric tonne<br>• Down 0.3% from fiscal year 2017 (3.915 GJ/metric tonne)<br>• Down 6.4% from fiscal year 2013 (4.170 GJ/metric tonne)<br><br>Reference:<br>$CO_2$ emissions per unit of production: 212.7 kg/metric tonne<br>• Down 4.1% from fiscal year 2017 (221.8 kg/metric tonne)<br>• Down 8.2% from fiscal year 2013 (212.7 kg/metric tonne) | ★★★<br><br>★★★<br><br>★★★ | In line with the global target, reduce $CO_2$ emissions at sites (Scope 1 and 2) by 30.0% from the fiscal year 2013 level by fiscal year 2030 (average annual decrease of 2.1%). |

## Framework for Promotion

DIC and DIC Group companies in Japan have established Energy-Saving Promotion committees at each site. Committee activities include confirming the progress of initiatives, engaging in discussions and conducting patrols. DIC has also set up Energy-Saving working groups comprising members chosen from each production facility that foster the exchange of information, research pertaining to new items and the Groupwide implementation of effective measures. This combination of site- and Group-level initiatives forms the framework under which the DIC Group endeavors to reduce its $CO_2$ emissions.

Overseas, DIC Group companies promote a wide range of independent energy-saving initiatives that align with the Group's policy. The Production Management Department provides support on multiple fronts, including the deployment of management systems and the training of employees. Critical initiatives are debated by and the progress thereof is reported on by the Sustainability Committee, which answers directly to the president and CEO.

## Principal Initiatives in Fiscal Year 2018

### 1 Setting a New Long-Term Target for the Reduction of $CO_2$ Emissions

The DIC Group has declared "decarbonization" as a key theme of its sustainability program and is working to lower emissions of $CO_2$ by reducing energy consumed by its businesses, as well as by advancing the use of energy from renewable sources by, among others, adopting biomass fuel, introducing solar and wind power, and purchasing low-carbon electric power. In October 2016, the Sustainability Committee set a medium-term target for reducing absolute emissions of $CO_2$ across global DIC Group sites by 7.0% from the fiscal year 2013 level by fiscal year 2020. To this end, the Group added promoting the use of electric power generated from renewable energy, including by biomass boilers and solar power systems, as well as by the purchase of low-carbon electric power, to core energy-saving initiatives at sites.

In line with its commitment to ESG management, in February 2019 the Group set a new long-term target in its new medium-term management plan, DIC111—which will guide its efforts from fiscal year 2019 through fiscal year 2021—of a 30% reduction in $CO_2$ emissions from the fiscal year 2013 level by fiscal year 2030. By achieving this target, which exceeds the 26.0% reduction pledged by Japan under the Paris Agreement, DIC aims to show its strong commitment to being a socially responsible manufacturer of fine chemicals. Looking ahead, the DIC Group will work to achieve these targets by promoting a two-pronged strategy centered on promoting energy-saving initiatives at sites and actively advancing the use of renewable energy.

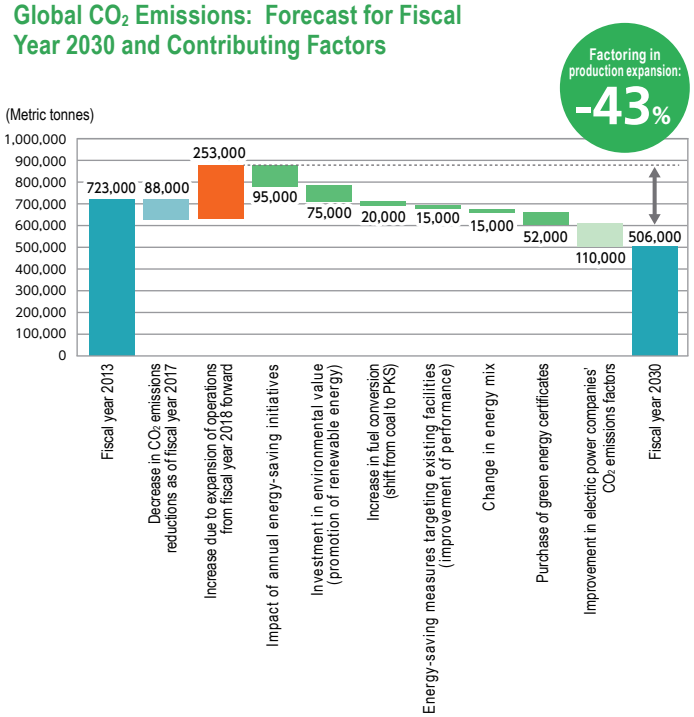
**Environment**

- Reduce $CO_2$ emissions attributable to production
- Supply products and solutions that contribute to sustainability

**Target: Reduce $CO_2$ emissions 30% from the fiscal year 2013 level by fiscal year 2030**

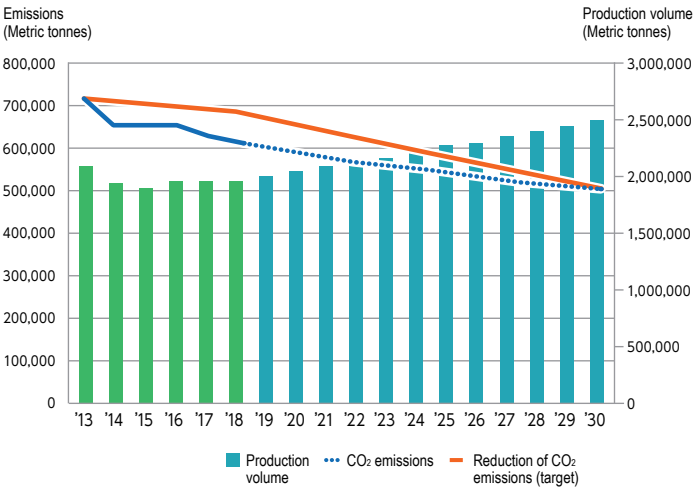
- Install solar power systems and reduce energy consumption per unit of production.
- Introduce a proprietary sustainability index based on reduction of environmental impact and contribution to market
- Utilize recycled materials and adopt biomass-derived materials.

### Global $CO_2$ Emissions: Forecast for Fiscal Year 2030 and Contributing Factors




### Global $CO_2$ Emissions: Results, Forecasts and Target for Fiscal Year 2030

**(Target: 30% Reduction from the Fiscal Year 2013 Level)**

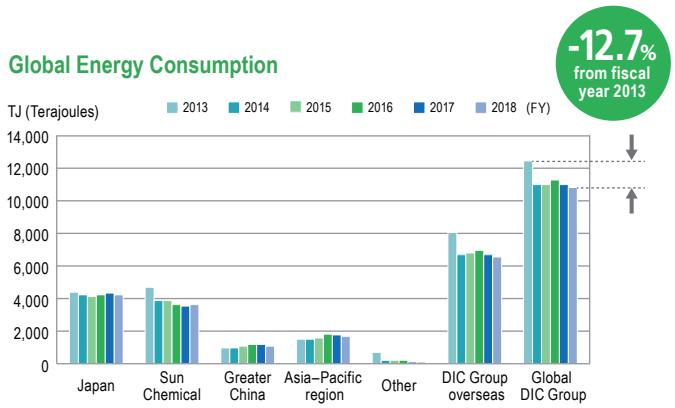


## 2 Energy Consumption and $CO_2$ Emissions by the Global DIC Group

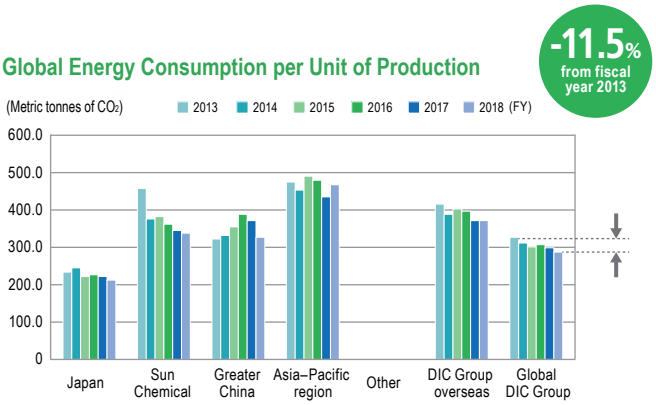
Although production volume by the global DIC Group was essentially level in fiscal year 2018, energy consumption was down 1.4% from fiscal year 2017 and 12.7% from the fiscal year 2013 base year. The Group's global $CO_2$ emissions declined 2.6% from fiscal year 2017, or 14.5% from fiscal year 2013, while emissions per unit of production, expressed in terms of kilograms of $CO_2$ per metric tonne, were down 2.3%, or 11.5% from fiscal year 2013.

The DIC Group's diverse product portfolio encompasses printing inks, polymers, pigments, LCs, engineering plastics and compounds. Recent years have seen an uptrend in the output of energy-intensive fine chemicals and a downtrend in the output of items the production of which is comparatively energy efficient. Against this backdrop, the Group's success in achieving a reduction in the volume of $CO_2$ emitted worldwide that exceeded its target for the year was due in large part to the decisive implementation of energy-saving and carbon-reduction initiatives worldwide, with efforts by Group companies in Japan playing a particularly significant role. Principal factors behind these results include the start-up of a megasolar power system with a generating capacity of 1.6 MW at the Kashima Plant and a biomass boiler with an evaporation rate of 2.5 metric tonnes/hour at the Hokuriku Plant, and the purchase of low-carbon electric power at several sites in Japan. Going forward, the DIC Group will continue to take steps to reduce energy consumption, as well as to further advance its use of renewable energy by shifting to clean fuels and solar power.

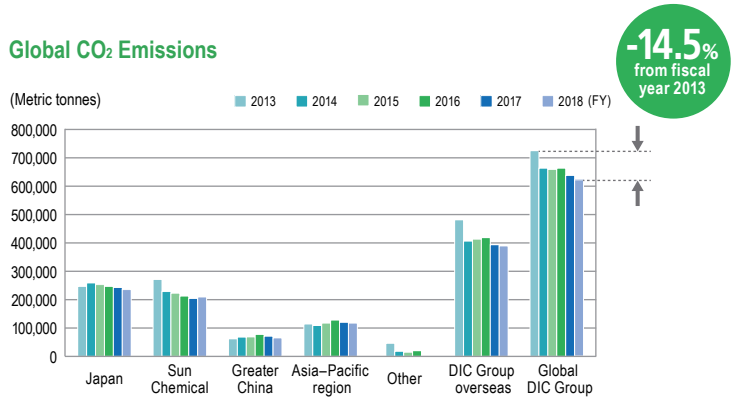
### Global Energy Consumption




### Global Energy Consumption per Unit of Production




### Global $CO_2$ Emissions

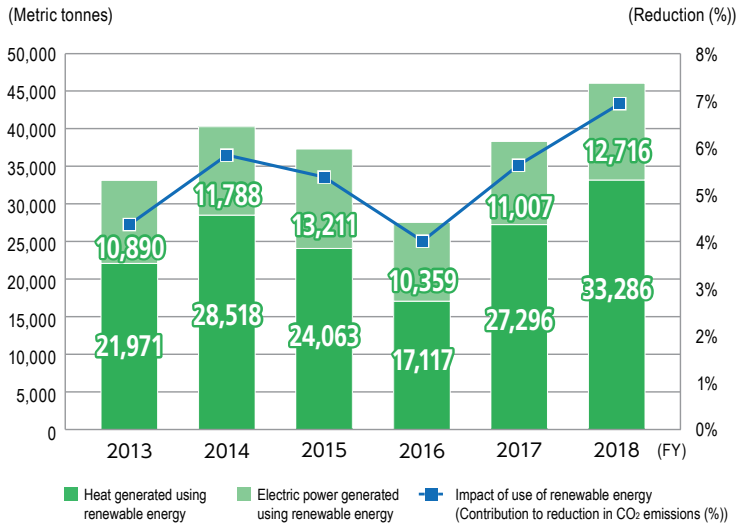



### $CO_2$ Emissions by Region

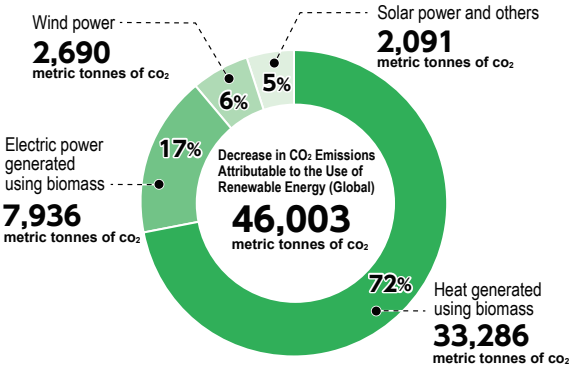
| | Production volume | | Energy consumption | | Energy consumption per unit of production | | $CO_2$ emissions | | $CO_2$ emissions per unit of production | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Change from previous fiscal year | Change from fiscal year 2013 base year | Change from previous fiscal year | Change from fiscal year 2013 base year | Change from previous fiscal year | Change from fiscal year 2013 base year | Change from previous fiscal year | Change from fiscal year 2013 base year | Change from previous fiscal year | Change from fiscal year 2013 base year |
| DIC Group in Japan | 98.9% | 98.3% | 98.6% | 96.8% | 99.7% | 93.6% | 94.9% | 94.9% | 95.9% | 91.8% |
| Sun Chemical Group | 103.0% | 103.4% | 100.9% | 78.0% | 97.9% | 75.5% | 101.4% | 76.9% | 98.4% | 74.4% |
| DIC Group (Greater China) | 106.2% | 107.6% | 93.4% | 112.2% | 87.9% | 104.2% | 93.1% | 107.8% | 87.6% | 100.2% |
| DIC Group (Asia–Pacific region) | 90.9% | 105.3% | 97.4% | 111.8% | 107.2% | 106.2% | 97.9% | 103.5% | 107.8% | 98.3% |
| DIC Group (Other) | 95.6% | 0.3% | 97.7% | 7.4% | — | — | 98.1% | 7.0% | — | — |
| DIC Group overseas | 100.4% | 90.5% | 98.6% | 82.2% | 98.2% | 90.8% | 98.9% | 80.7% | 98.5% | 89.1% |
| Global DIC Group | 99.6% | 94.0% | 98.6% | 87.3% | 99.0% | 90.4% | 97.4% | 85.5% | 97.7% | 88.5% |
| Change (Global) | -0.4% | -6.0% | -1.4% | -12.7% | -1.0% | -9.6% | -2.6% | -14.5% | -2.3% | -11.5% |
| KPI assessment | — | — | — | — | ○ | ○ | ○ | ○ | ○ | ○ |

| | Factors contributing to change in $CO_2$ emissions | Change in $CO_2$ emissions (Metric tonnes) | | Decrease (%) |
|---|---|---|---|---|
| DIC Group in Japan | Japan: Purchase of low-carbon electric power (including from existing electric power companies with improved $CO_2$ emissions factors) | -5,057 | -12,491 | 1.9% |
| | Japan: Implementation of 535 energy-saving initiatives at sites | -6,508 | | |
| | Japan: Increase in power generated using renewable energy (Kashima and Hokuriku plants) | -3,651 | | |
| | Japan: Decrease in incineration of waste oil and waste plastic (Chiba Plant) | -2,871 | | |
| | Japan: Decrease in production volume | -1,676 | | |
| | Japan: Changes in product mix | 4,155 | | |
| | Other factors | 3,117 | | |
| DIC Group overseas | Asia–Pacific region: Decline in production volume | -1,665 | -2,411 | 0.7% |
| | Asia–Pacific region: Impact of energy-saving initiatives and increased productivity | -4,384 | | |
| | Asia–Pacific region: Change in reporting boundary (shift of DIC Fine Chemicals Private Limited in India to Sun Chemical jurisdiction) | -5,107 | | |
| | Asia–Pacific region: Increase in output of energy-intensive products (pigments) | 6,799 | | |
| | Asia–Pacific region: Other factors | 1,946 | | |
| | Greater China: Flagging operating rates at facilities producing energy-intensive products (pigments) | -5,402 | -4,557 | |
| | Greater China: Impact of energy-saving initiatives and increased productivity | -2,695 | | |
| | Greater China: Other factors | -2,013 | | |
| | Greater China: Increase in production volume | 4,933 | | |
| | Greater China: Change in reporting boundary (inclusion of Guangzhou Lidye Resin Co., Ltd.) | 620 | | |
| | Sun Chemical Group: Impact of energy-saving initiatives and increased productivity | -5,032 | 2,821 | |
| | Sun Chemical Group: Other factors | -3,363 | | |
| | Sun Chemical Group: Increase in production volume | 6,109 | | |
| | Sun Chemical Group: Change in reporting boundary (shift of DIC Fine Chemicals Private in India from Asia–Pacific region jurisdiction) | 5,107 | | |
| | Other: Decrease in production volume at U.S. subsidiary Earthrise Nutritionals, LLC | -56 | -56 | |
| | Change in $CO_2$ emissions (metric tonnes) | | -16,694 | |
| | Change in $CO_2$ emissions (%) | | 2.6% | |
| | $CO_2$ emissions in fiscal year 2017 | | 634,741 | |
| | $CO_2$ emissions in fiscal year 2018 | | 618,047 | |

## Reduction in Global $CO_2$ Emissions Attributable to the Use of Renewable Energy




## Breakdown of Reduction in $CO_2$ Emissions Attributable to the Use of Renewable Energy (Global) in Fiscal Year 2018




Notes:
1. Steam generated using biomass is calculated as fuel oil equivalent.
2. The portion of the decrease in $CO_2$ emissions accounted for by the use of electric power generated using renewable energy is calculated as 0.5 metric tonne of $CO_2$/kWh.

## 3 Energy Consumption and $CO_2$ Emissions by the DIC Group in Japan

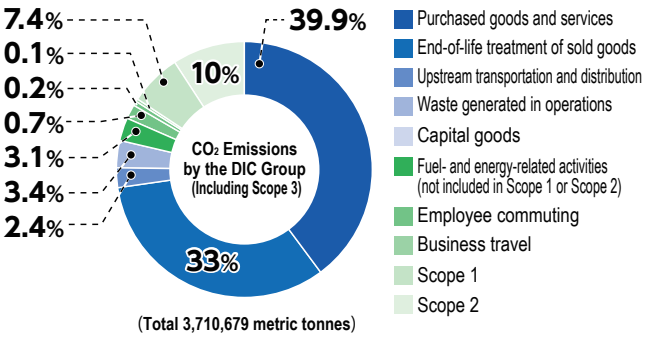
With production volume by the DIC Group in Japan—the 52 sites operated by DIC and domestic Group companies—down 1.1% in fiscal year 2018, energy consumption declined 1.4% and energy consumption per unit of production edged down 0.3%. $CO_2$ emissions fell 5.1%, to 231,820 metric tonnes, from 244,359 metric tonnes in fiscal year 2017, and $CO_2$ emissions per unit of production decreased 4.1%, to 212.7 kg $CO_2$/metric tonne, from 221.8kg $CO_2$/metric tonne. The sharp decline in $CO_2$ emissions reflected, among others, the revision of standards used to evaluate potential environmental facility investments to include factors such as balance between environmental value and depreciation, making it easier to install solar power systems, among others, and the implementation of energy-saving initiatives at individual sites.

Principal factors behind these results and the resulting reductions included the start-up of a megasolar power system, an increase in know-how regarding the operational management of wind power systems, an increase in biomass boiler operating rates attributable to a shift to independent maintenance and management, and an improvement in heating medium pump combustion efficiency at the Kashima Plant, which accounted for decreases of 900 metric tonnes, 400 metric tonnes, 800 metric tonnes and 400 metric tonnes, respectively; the full-scale start-up of a biomass boiler at the Hokuriku Plant, which supported a reduction of 1,600 metric tonnes; the implementation of 535 energy-saving initiatives at sites, which were responsible for a decline of 6,500 metric tonnes; and the purchase of low-carbon electric power with a low $CO_2$ emissions factor, which accounted for a decrease of 5,000 metric tonnes. These factors were sufficient to offset an increase arising from changes in product mix, yielding a net reduction in $CO_2$ emissions of approximately 12,500 metric tonnes, equivalent to 5.1% of total emissions by the DIC Group in Japan.

Regarding $CO_2$ emissions across its supply chain, in fiscal year 2017 DIC participated in a lecture on science-based targets (SBTs) organized by Japan's Ministry of the Environment. As a result, DIC now reports data for all categories of Scope 3*. The Company obtains third-party verification for "waste generated in operations."

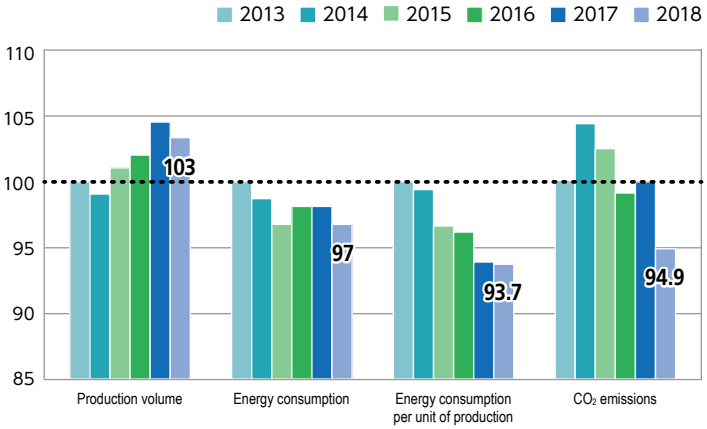
* Scope 3 emissions are indirect emissions from production, transport, shipment, commuting and other activities in the supply chain.

### $CO_2$ Emissions by the DIC Group (Including Scope 3)




(Total 3,710,679 metric tonnes)

### Changes in Energy Consumption and $CO_2$ Emissions Since Fiscal Year 2013 (DIC Group in Japan)




## 4 Energy-Saving Initiatives by the DIC Group in Japan

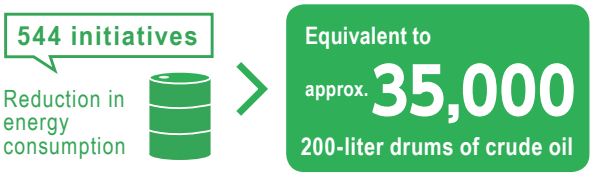
DIC Group sites (plants and R&D facilities) in Japan endeavor to conserve energy by promoting the following initiatives, which target the reduction of base load energy consumption, and by applying the PDCA cycle to improve the efficiency of production methods—thereby reducing energy used—and shorten process times. Since fiscal year 2017, sites also promote carbon-reduction initiatives.

- Employed highly efficient lighting and air conditioning measures to eliminate waste
- Introduced energy-saving controls on pumps and blowers
- Used more efficient compressors and implemented measures to reduce pressure losses
- Implemented measures to improve the power factors of electric equipment
- Adopted high coefficient of performance chillers and promoted measures to prevent cold and hot water supply waste
- Reduced use of boiler fuel, among others, through the recovery of waste heat
- Ensured optimal warming times and temperatures for raw materials
- Implemented 544 energy-saving initiatives at domestic production sites
- Actively promoted the use of renewable energy at suitable sites (installation of megasolar power system at the Kashima Plant and biomass boiler at the Hokuriku Plant)
- Purchased low-carbon power at suitable sites
- Increased output of electric power generated using renewable energy (biomass boiler and wind power generating facilities at the Kashima Plant)

In fiscal year 2018, these initiatives reduced energy consumption by approximately 279,000 GJ (equivalent to approximately 7,000 kl of crude oil). This corresponds to approximately 35,000 200-liter drums of crude oil, or 6.6% of the total energy consumed by the DIC Group in Japan in the period under review.

Going forward, the DIC Group will continue working to reduce its consumption of energy, as well as to identify new themes and share best practices across Group sites. In addition, the Group will reinforce operating manuals to optimize the performance of key energy-consuming equipment, including boilers, chillers and compressors, and expand the deployment of initiatives at sites both in Japan and overseas.

**544 energy-saving initiatives accounted for a reduction in energy consumption equivalent to approx. 35,000 200-liter drums of crude oil**



### Key DIC Group Energy-Saving Initiatives in Japan in Fiscal Year 2018

| No | Production facility | Production floor Production process | Energy-saving initiative | Category | Impact in fiscal year 2018 | | |
|---|---|---|---|---|---|---|---|
| | | | | | Reduction in annual energy consumption (GJ) | Reduction in $CO_2$ emissions (Metric tonnes) | Financial impact of reduction n annual energy consumption (Thousands of yen) |
| 1 | Chiba | D production floor | Suspended operation of CU-1 refrigerator after transfer of products | Electric power | 1,677 | 801 | 2,555 |
| 2 | Chiba | J production floor | Replaced heating medium pump (reduced motor capacity) | Electric power | 1,778 | 852 | 2,708 |
| 3 | Chiba | J production floor | Reduced number of P-34 water pumps from two to one | Electric power | 477 | 227 | 727 |
| 4 | Hokuriku | Utility control group | Installation of biomass boiler | Heat | 31,517 | 1,561 | 22,739 |
| 5 | Yokkaichi | Production team | Cleaned rust buildup from the surface of F-series heating medium boiler to improve combustion efficiency | Heat | 9,619 | 476 | 9,910 |
| 6 | Yokkaichi | Production team | Installed systems for improving power factors in F-series substations | Electric power | 3,671 | 186 | 4,976 |
| 7 | Kashima | Utility control group | Installation of megasolar power system (1,553 kW capacity) | Electric power | 18,647 | 908 | 17,446 |
| 8 | Kashima | Utility control group | Increased operation of wind power facility by enhancing operating stability | Electric power | 7,295 | 355 | 10,464 |
| 9 | Kashima | Utility control group | Increased volume of heat used by enhancing operation of biomass boiler | Heat | 16,624 | 828 | 14,408 |
| 10 | Kashima | DIC EP (J-4) | Improved air ratio of heating medium boiler from 1.22 to 1.15 | Heat | 4,920 | 245 | 6,566 |
| 11 | Kashima | DIC EP (J-3) | Used waste heat recovery to reduce use of steam in the preparation of heated pure water | Heat | 2,175 | 110 | 4,867 |
| | | | Subtotal (11 key initiatives) | | 98,401 | 6,548 | 97,365 |
| | | | (Portion attributable to four key initiatives involving increases in use of renewable energy) | | (74,084) | (3,651) | (65,058) |
| | | | Others (537 initiatives) | | 45,031 | 3,611 | 68,821 |
| | | | Total (all initiatives in Japan) | | 143,432 | 10,159 | 166,186 |

## Horizontal Deployment and Further Strengthening of Energy-Saving Working Groups

In Japan, leaders of domestic site Utility Control Groups, which oversee energy and water supplies and wastewater treatment, hold quarterly Utility Control Liaison Working Group conferences. A central focus of conferences is Energy-Saving working groups. Here, Utility Control Group managers are joined by representatives of the Production Management Department, who are currently assisting with efforts to prepare a manual outlining key energy-saving measures, compile best practice case studies, discover and test new methods for reducing energy consumption, consider the use of renewable energy as a way to reduce carbon, and conduct energy-saving analyses at sites nationwide.

The Energy-Saving Promotion Manual sets forth measures for, among others, enhancing the visibility of energy consumption, the framework for promoting energy-saving initiatives, procedures for formulating energy-saving plans, creating energy management standards, approaches to benchmarks for gauging energy performance and to investments in energy-saving initiatives, and use of the PDCA cycle to measure the progress of initiatives. The manual is distributed for use across the domestic DIC Group. Energy-saving analysis begins with comparing initiatives against the manual, creating a numerical expression of findings and plotting the results on a radar chart. Subsequent steps are to formulate proposals for addressing weaknesses identified through this process, implement remedial measures and follow up on results. Efforts to formulate proposals are not limited to individuals directly responsible, but also include pertinent department and plant general managers. DIC will continue to use these energy-saving analysis activities to raise the level of efforts at sites nationwide, in addition to which it will add risk management–based BCP to the list of assessment criteria used and begin deployment at overseas Group production facilities.

Energy-Saving Working Group meeting

### Utility Control Liaison Working Group Initiatives for Fiscal Year 2019

| | | |
|---|---|---|
| Responses to global warming | Promote energy-saving initiatives and low carbonization | Energy-Saving working groups |
| Maintenance of power facilities | Reduce problems with power facilities and increase investment efficiency<br>Reduce problems with electric equipment and foster a new generation of experts<br>Implement measures to increase the stability of wastewater treatment | Power Facility Working Group<br>Electric Technology Working Group<br>Wastewater Treatment Working Group |
| Responses to environmental risks | Ensure accurate grasp of air and water quality<br>Create framework for ensuring the swift start-up of utilities (BCP) | Environmental Risk Project |
| Cost reductions | Lower utilities costs and the cost of consumables and intermediate materials | Cost Reduction Project |

## Energy-Saving Analyses

**Energy-Saving working groups**

**Policy: Promote resolute energy-saving initiatives and forward-looking decarbonization measures**

(1) Conduct energy-saving analyses (2) Follow up on remedial measures
(3) Compile best practice case studies and discover new themes for horizontal deployment (4) Advance the use of solar power
(5) Explore the feasibility of installing biomass boilers (6) Foster energy-saving experts

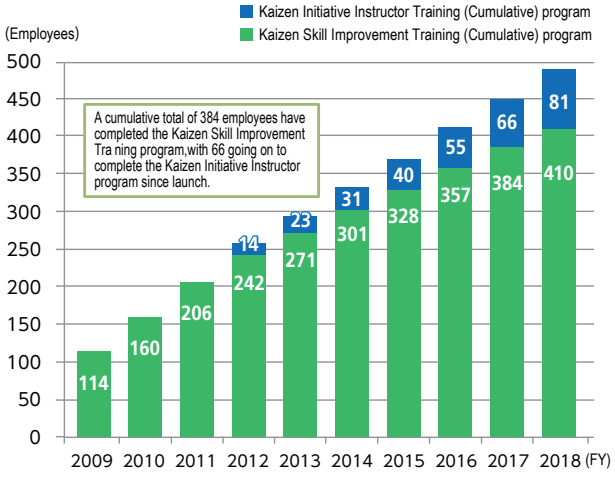
In fiscal year 2018, energy-saving analyses were conducted at four DIC Group sites in Japan (DIC EP Corp.'s Sodegaura Plant, Seiko PMC's Harima Plant, DIC's Chiba Plant and DIC Graphics' Tokyo Plant). Analyses focused on improving the performance of energy conversion equipment, including compressors, chillers, boilers and substations; decreasing energy losses by energy-consuming equipment; improving energy conservation; enhancing energy management; and deploying best practices at other sites. Analysis teams consisting of members of Energy-Saving working groups from across the country are dispatched to sites to conduct audits. This process is also used as a training opportunity for site energy managers, young mid-career individuals in charge of energy management at their respective sites. These audits comprise a key pillar of the DIC Group's energy-saving and decarbonization framework in Japan. The Group will continue to conduct audits in fiscal year 2019 to ensure that all Group companies are on the same wavelength regarding energy-saving initiatives.

### Reducing Energy Consumption and Enhancing Product Quality through Kaizen Skill Improvement Training

Having recognized that enhancing the awareness of employees in production and providing them with the tools to continuously improve their work are crucial to strengthening front-line capabilities, in 2008 DIC began offering the Kaizen Skill Improvement Training program. This program—which is structured around four themes, namely, reducing energy consumption, increasing yields, enhancing product quality and rationalizing operations—seeks to foster professionals who can identify and resolve issues on their own initiative. Participants spend one year participating in initiatives aimed at improving quality control methods and the following year putting their findings into practice. Each December, achievements are presented at a briefing attended by pertinent plant general managers and executives.

Since 2012, DIC has also offered the Kaizen Initiative Instructor Training program, designed to equip employees who have completed the Kaizen Skill Improvement Training program with the leadership and educational skills necessary to serve as instructors for the program. As of the end of fiscal year 2018, a cumulative total of 491 employees from pertinent DIC sites in Japan had completed Kaizen training, with 81 subsequently going on to earn accreditation as program instructors, adding momentum to energy-saving and other initiatives.

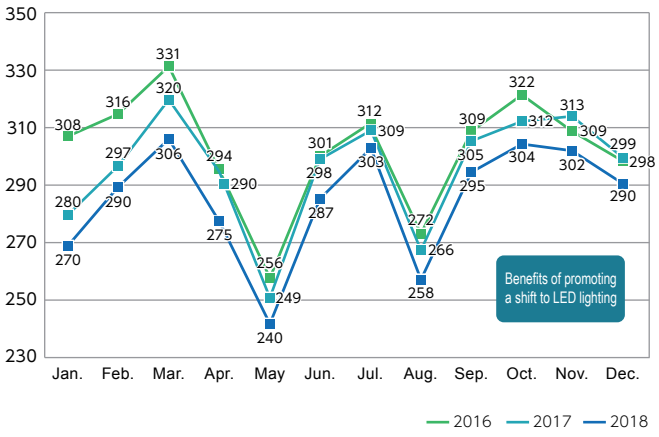
### Number of Employees Completing Kaizen Training (Cumulative)




### Improving Yields by Expanding Use of a System to Enhance the Visibility of Energy Consumption

With the aim of optimizing energy use on a facility-by-facility basis, DIC developed a system that measures, monitors and verifies waste and irregularities in use in real time, thereby enhancing the visibility of energy consumption. The system is also useful for verifying the benefits of energy-saving initiatives implemented, underscoring its role as an essential tool for promoting the reduction of energy consumption. At present, DIC is gradually introducing a visibility-enhancing system that also analyzes process-specific energy consumption for individual products and lots. The Company has installed the system on the V production floor of the Chiba Plant, the C production floor of the Kashima Plant and the B production floor of the Sakai Plant and is using it to promote the reproduction optimum yields for materials inputs. In fiscal year 2016, a more advanced version of the system was installed at the Yokkaichi Plant. Looking ahead, the Company will continue to promote adoption at other sites.

### Use of Electric Power in Electric Lighting over Three Years



## 5 Reducing Fossil Fuel Use by Promoting the Use of Renewable Energy

***Renewable energy as a percentage of total energy used by the DIC Group in Japan: 12.1%***

The bulk of renewable energy used by DIC Group companies in Japan is natural energy generated by a biomass boiler and wind and solar power facilities at the Kashima Plant. In fiscal year 2018, DIC Group companies in Japan used 586,000 GJ of renewable energy (equivalent to 15,123 kl of crude oil), up 18.0% from fiscal year 2017 and representing 12.1% of total energy (heat and electric power) consumption by these companies. This increase was attributable to the stable operation of an existing biomass boiler, efforts to achieve an optimal mix of power sources (biomass boiler, wind power, solar power, a cogeneration system and purchased electric power) and the start-up of a megasolar power system (comprising 5,588 278-watt panels with a total surface area of 13,772 $m^2$) with a generating capacity of 1.6 MW (January 2018) at the Kashima Plant (January 2018), and the full-scale start-up of a biomass boiler with an evaporation rate of 2.5 metric tonnes/hour at the Hokuriku Plant (January 2018). The use of renewable energy accounted for a 36,530-metric tonne reduction of $CO_2$ emissions in Japan from the fiscal year 2017 level, accounting for 13.6% of the total reduction achieved by the Group in the period.

Early in fiscal year 2019, DIC completed the installation of solar power systems at five sites. These facilities, which will produce a combined total of 1.5 MW of electric power annually, began operating in January 2019. Particularly notable is the system established at the Tatebayashi Plant, which boasts an annual generating capacity of 1.3 MW—second only to the Kashima Plant's megasolar power system—and accounts for approximately 20% of the electric power used annually by the plant. Going forward, DIC will continue to take decisive steps to advance its use of renewable energy with the aim of achieving its long-term target for reducing emissions of $CO_2$ across global DIC Group sites by 30% from the fiscal year 2013 level by fiscal year 2030.

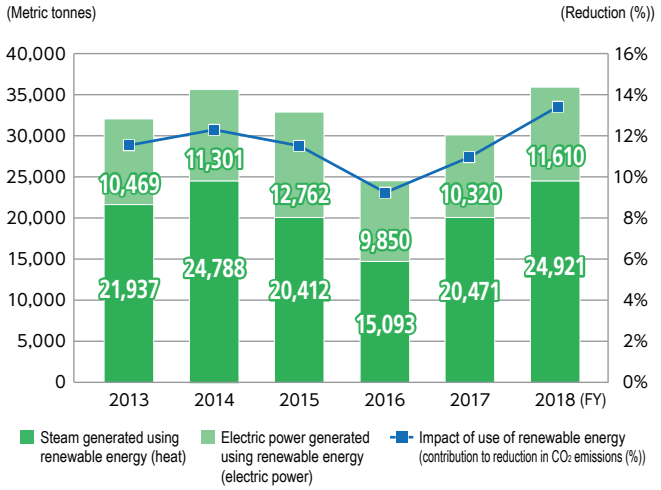
| | Up to and including fiscal year 2017 | Fiscal year 2018 | Fiscal year 2019 | Plan for fiscal year 2020 (under consideration) |
|---|---|---|---|---|
| **Biomass boiler** (wood chip–fired)<br>• Heat produced in fiscal year 2018: 515,000 GW (Electric power produced included: 15,872,000 kWh)<br>• Annual generating capacity up to and including fiscal year 2018: Approximately 4.0 MWh | **Kashima Plant**<br>• Steam produced: Maximum 30 metric tonnes/hour<br>• Approximately half of steam generated used in production processes<br>• Remainder of steam produced used to power turbine generating electric power for internal use<br>• Generating capacity: 4,000 kW | **Hokuriku Plant**<br>• Steam produced: Maximum 2.5 metric tonnes/hour<br>• All steam produced used in production processes<br>• No electric power generating function<br>• Commenced operation in January 2018 | — | — |
| **Wind power**<br>• Electric power generated in fiscal year 2018: 5,379,000 kWh<br>• Annual generating capacity up to and including fiscal year 2018: Approximately 4.6 MWh | **Kashima Plant**<br>• Generating capacity: 4,600 kW<br>• Facility: Two 2,300 kW–capacity wind turbines | — | — | — |
| **Solar power**<br>• Electric power generated in fiscal year 2018: 1,968,000 kWh<br>• Annual generating capacity up to and including fiscal year 2018: Approximately 5.2 MWh | **Kashima Plant**<br>• Generating capacity: 100 kW<br>**DIC Decor, Inc.**<br>• Generating capacity: 20 kW | **Kashima Plant**<br>• Generating capacity: 1,600 kW<br>• Number of panels: 5,588 (each 278 W)<br>• Commenced operation in January 2018 | **Tatebayashi Plant**<br>• Generating capacity: 1,270 kW<br>**Central Research Laboratories**<br>• Generating capacity: 40 kW<br>**Yokkaichi Plant**<br>• Generating capacity: 20 kW<br>**Chiba Plant**<br>• Generating capacity: 100 kW<br>**Saitama Plant**<br>• Generating capacity: 30 kW<br>**Total: 1,500 kW**<br>Note: All facilities commenced operation in January 2019. | 10 sites<br>• Total generating capacity: 2,000 kW |

Megasolar power system at the Kashima Plant (1.6 MW)

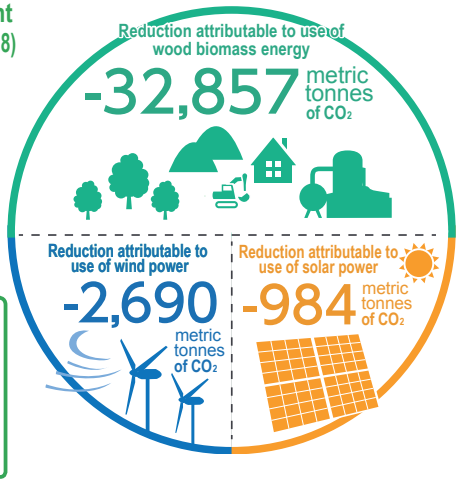
Megasolar power system at the Tatebayashi Plant (1.3 MW)

Biomass boiler at the Hokuriku Plant

### Reduction in $CO_2$ Emissions by the DIC Group in Japan Attributable to the Use of Renewable Energy




### $CO_2$ Emissions Reductions at the Kashima Plant (January–December 2018)




**Result**
Reduction in $CO_2$ emissions (January–December 2018)
**-36,530** metric tonnes

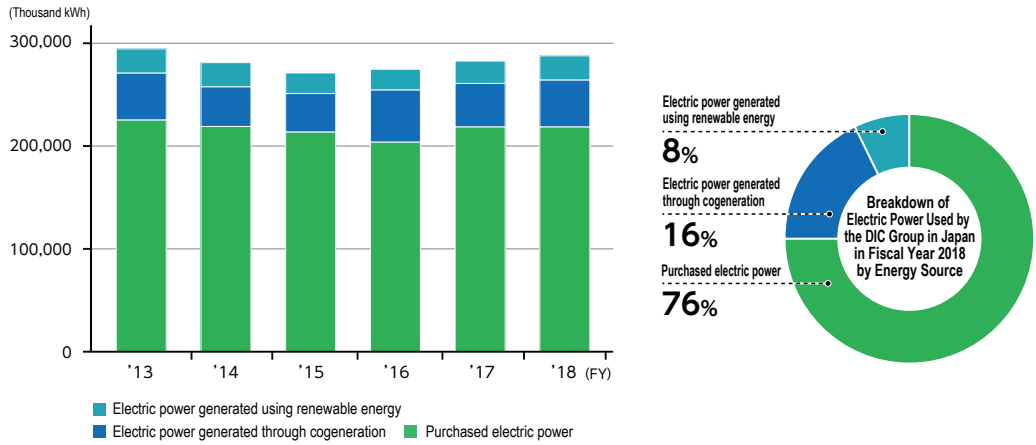
*Independent Electric Power Generation: 24.0% of Total Consumption in Japan*

Electric power consumption by the DIC Group in Japan in fiscal year 2018 rose 1.7% from the previous fiscal year, to 287,870,000 kWh, approximately 24.0% of which was generated independently, with electric power generated using renewable energy accounting for 8.0% and electric power generated using cogeneration systems representing 16.0%. Independently generated electric power was up 5.0% from the previous fiscal year, owing to an increase in solar power.

*Portion of Purchased Electric Power Replaced with Low-Carbon Alternative*

Owing to an increase in consumption, electric power purchased by DIC Group companies in Japan rose approximately 1.0% in fiscal year 2018. Because purchased electric power accounts for around 76% of the electric power it uses, the Company sought to reduce the $CO_2$ footprint of its purchased electric power by replacing a portion thereof with a low-carbon alternative. This accounted for a reduction in $CO_2$ emissions of 6,508 metric tonnes $CO_2$, or 2.7%, from fiscal year 2017. DIC will continue to promote the procurement of green electric power by reviewing the companies from which it purchases electric power and prioritizing those with a low $CO_2$ emissions factor.

### Electric Power Used by the DIC Group in Japan by Energy Source




## 6 Development of a Weather Forecast Data–Based Renewable Energy Solution

Renewable energy sources are highly dependent on the weather. For this reason, maximizing use and at the same time ensuring a balance with purchased electric power and electric power generated using cogeneration is a major challenge. At the Kashima Plant, such adjustments were previously made by a small team of operators. In fiscal year 2018, the facility began developing a system that uses weather forecast data to automatically adjust supplies in accordance with weather conditions. In collaboration with the Corporate Engineering Department's Process Automation Engineering Group, the plant also developed a proprietary software program. The new system sends key forecast data, including sunlight, temperature and wind speed, from the Japan Weather Association up to three days in advance, to a computer that is linked to renewable energy generation facilities (including solar and wind power facilities and biomass and methane gas boilers), cogeneration systems and purchased electric power facilities, facilitating automatic adjustment to optimize energy use. The system was introduced on a trial basis later in the year and benefits are currently being verified. DIC also hopes to see the system used as a case study of a striking improvement in operating efficiency achieved using information and communications technologies (ICT).

## VOICE DIC has switched from manual to automatic control for adjusting supplies of electric power.

DIC had never before used a system that adjusts electric power supplies based on weather forecast data and there was very little in the way of helpful information, so the whole development process—from selecting a company to provide weather-related information to developing a proprietary program—was pretty fraught.

I built the program's monitoring and management functions primarily using Microsoft Excel Visual Basic for Applications (VBA) macros. I had to teach myself how to program using VBA, which was entirely new to me. I also did not know enough about the equipment on the Kashima Plant's utility floor, so unfamiliar technical terms made communicating in Japanese with colleagues on the front lines more difficult. Nonetheless, I pushed ahead with the goal of helping create a highly reliable program for the Kashima Plant that meets its needs, suits its equipment and can be easily modified at any time.

Working at DIC has given me the opportunity to become familiar with a wide range of advanced technologies and gain broad experience. I look forward to using my position as an engineer with global credentials to act as bridge between my home country of Malaysia and Japan, as well as to contributing to both countries and the world at large.

Process Automation Engineering Group, Corporate Engineering Department, Chiba Plant **Mohammad Farhan Bin Mohd Fauzi**

## VOICE We were tasked with developing a weather forecast data–based system for using renewable energy.

This project was quite challenging for someone who had joined DIC only two years earlier, but Mr. Farhan's energetic nature and communications skills served him well. The system he has built for us will both reduce $CO_2$ emissions and increase our operating efficiency. While there were many hurdles, particularly in selecting a company to provide weather-related information that satisfied our requirements, developing logic and creating a method for importing website weather data, I was impressed by his ability to resolve any issues that cropped up, seeking the assistance of the Utility Control Group and his more experienced colleagues when necessary, and press on with the task at hand.

I look forward to seeing Mr. Farhan take on new challenges and achieve outstanding results, and am confident that his talent for creative execution will ensure he grows and thrives in the years ahead.

General Manager, Process Automation Engineering Group, Corporate Engineering Department, Chiba Plant **Kazuyuki Nagata**

## TOPIC

### DIC Wins New Energy Foundation Chairman's Award in the Adoption and Application Category of the 2018 New Energy Awards

In December 2018, DIC won a New Energy Foundation Chairman's Award in the Adoption and Application Category of the 2018 New Energy Awards in recognition of the expanded use of renewable energy at the Kashima Plant. The awards program, which was presented by the New Energy Foundation, was established with the aim of encouraging the introduction of new energy and promoting awareness by commending particularly excellent initiatives.

The Kashima Plant has installed multiple renewable energy–powered generating facilities, including biomass and methane gas boilers, as well as wind power and solar power systems. As a consequence, 50% of electric power and 80% of heat consumed annually by the site is generated by using renewable energy. These facilities also contributed to a reduction in annual $CO_2$ emissions in fiscal year 2018 of more than 36,000 metric tonnes. Looking ahead, the department responsible for the plant's energy supply will continue working to enhance the combustion efficiency of generating facilities, including biomass and methane gas boilers, by upgrading maintenance and management technologies and accumulating know-how.

The Chairman's Award recognizes the positive results of these steadfast efforts. DIC will deploy know-how accumulated by the Kashima Plant at sites both in Japan and overseas with the aim of increasing its use of renewable energy and reducing its emissions of greenhouse gases around the world.

### Reductions in Annual $CO_2$ Emissions Attributable to the Use of Renewable Energy at the Kashima Plant

Biomass boiler
(Annual reduction: 32,000 metric tonnes)

Wind power system
(Annual reduction: 2,200 metric tonnes)

Methane gas boiler
(Annual reduction: 600 metric tonnes)

Megasolar power system
(Annual reduction: 1,200 metric tonnes)

## VOICE Our goal is to optimize the Kashima Plant's energy mix.

My duties include managing data related to the various types of energy used by the Kashima Plant, promoting energy-saving measures and assisting with the management of utility floor equipment operations. The Kashima Plant is a unique facility in that it consumes more energy than any other DIC Group site in Japan and has a wide range of electric power generating facilities and boilers. It is necessary for us to select the best mix of energy for the operating status of production floors. Operational management at the Kashima Plant is not something you can experience at any other site. In addition, because energy consumption and energy usage vary from one production floor to another, we must promote rationalization in a manner that takes into account the equipment and operating methods employed on each floor. My job is challenging, but many aspects of it are rewarding. Looking ahead, we aim to leverage IoT and AI technologies, as well as to flatten out energy demand, with the aim of building a more robust energy network.

Utility Control Group, Kashima Plant **Rina Kawano**

Ms. Kawano is the Kashima Plant Utility Control Group's first female employee and recently celebrated her second year here. Her principal responsibility is data management for the group. The Kashima Plant was one of the earliest DIC sites in Japan to address the challenge of optimizing its energy mix. Unless you understand the status of other sites, it is difficult to understand the Kashima Plant's unique nature. I look forward to seeing her grow as one of DIC's first female energy managers by capitalizing on her optimistic personality and gaining a wide range of experience.

General Manager, Utility Control Group, Kashima Plant **Ichirou Kawase**

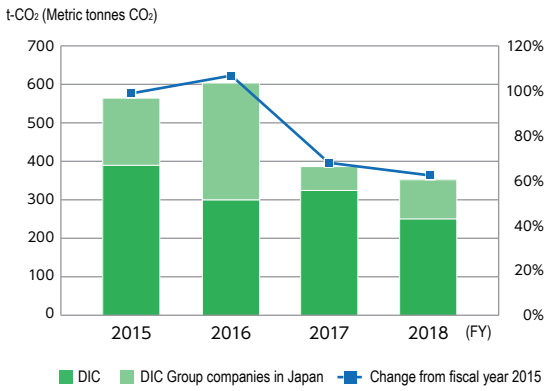
## 7 Protecting the Ozone Layer

Hydrofluorocarbons (HFCs) are used widely as refrigerants in equipment and facilities. While not an ozone depleting substance, HFCs have a global warming potential 100–10,000 times that of $CO_2$ and their use is expected to account for a 0.5°C increase in the global average temperature by the end of the 21st century. At the 28th Meeting of the Parties in Kigali, Rwanda, held in October 2016, the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer reached an agreement to phase down production and use of HFCs (the Kigali Amendment). Japan subsequently amended its Act on the Protection of the Ozone Layer Through the Control of Specified Substances and Other Measures in line with the amendment, which as of January 10, 2019, had been ratified by 65 Parties. Having surpassed the condition of ratification by at least 20 Parties, the Kigali Amendment entered into force on January 1, 2019.

In April 2015, Japan revised the Fluorocarbons Recovery and Destruction Law. The same month, the Act on Rational Use and Proper Management of Fluorocarbons entered into force, compelling stakeholders to ascertain and report leaks of fluorocarbons from commercial equipment and facilities.

In fiscal year 2018, DIC reported leaks of fluorocarbons equivalent to 356 metric tonnes of $CO_2$. (Companies are obliged to report leaks in excess of 1,000 metric tonnes to the Japanese authorities.) This represents a 37.0% decline from 566 metric tonnes in fiscal year 2015, the year the Act on Rational Use and Proper Management of Fluorocarbons entered into force. The DIC Group will continue to select air conditioning and other equipment using nonfluorocarbons and other refrigerants that do not negatively impact the environment with the aim of reducing the volume of fluorocarbon leakage for which it is responsible.

### DIC Group Leaks of Fluorocarbons in Japan ($CO_2$ Equivalent)

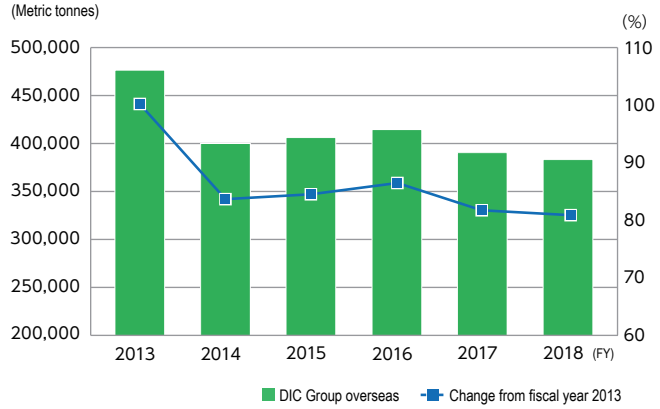



## 8 Energy Consumption and $CO_2$ Emissions by the DIC Group Overseas

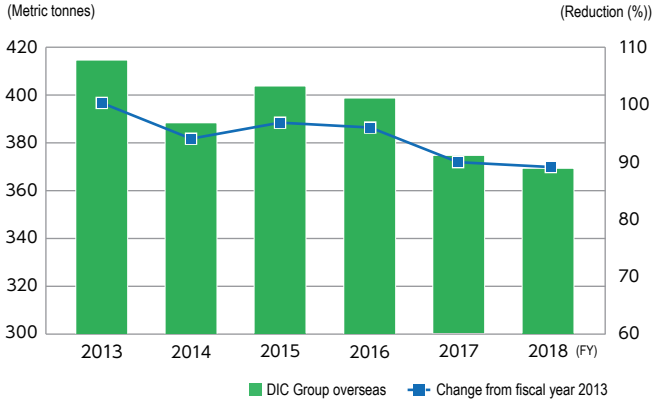
While production volume by the DIC Group overseas in fiscal year 2018 edged up 0.4% from fiscal year 2017, energy consumption slipped 1.4%—a 17.8% decline from the fiscal year 2013 base year—and energy consumption per unit of production declined 1.8%, or 9.2% from fiscal year 2013. $CO_2$ emissions by overseas Group companies in fiscal year 2018 decreased 1.1%, or 19.3% from the base year, and $CO_2$ emissions per unit of production were down 1.5%, or 10.9% from fiscal year 2013.

Factors contributing to the decline in $CO_2$ emissions included efforts by individual companies to break down the Group's emissions reduction targets and promote decarbonization initiatives; the start-up of a biomass boiler at Hainan DIC Microalgae Co., Ltd., and a solar power system at Qingdao DIC Finechemicals in the PRC; the start-up of a solar power system at Siam Chemical Industry in Thailand and the replacement of a portion of the coal used to fire boilers with palm kernel shells (PKS) at PT. DIC Graphics' Karawang Plant (Indonesia) in the Asia–Pacific region; and the installation of additional solar power systems and initiatives aimed at improving production efficiency in the Americas and Europe.

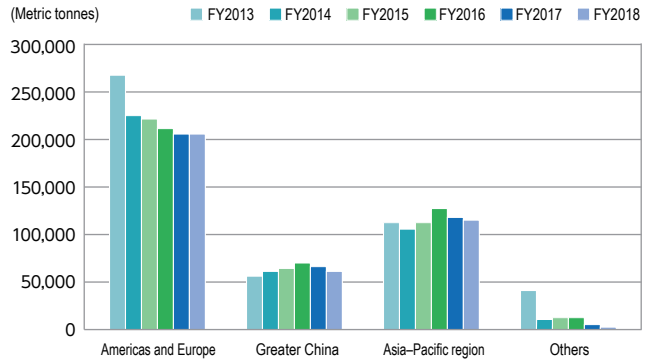
### $CO_2$ Emissions by the DIC Group Overseas and Change from Base Year (Fiscal Year 2013)




### $CO_2$ Emissions per Unit of Production by the DIC Group Overseas and Change from Base Year (Fiscal Year 2013)




### $CO_2$ Emissions by Region




## Promoting Energy Savings Overseas

Laws and regulations, as well as infrastructure, differ between countries and regions. The DIC Group strives to promote energy savings and efficient operations wherever it is active and in so doing sets precedents for the global chemicals industry.

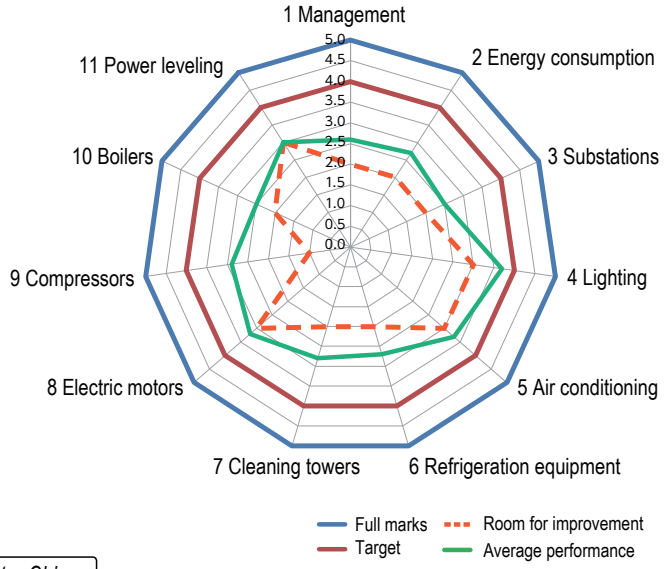
DIC Group companies overseas continue to implement a broad range of energy-saving initiatives, including improving production efficiency, reducing base load energy consumption, choosing high-efficiency models when replacing equipment and switching to LED lighting. The Group is also promoting the use of renewable energy and has several new projects currently under consideration for implementation in fiscal year 2019 and beyond. Corporate headquarters is stepping up collaboration with overseas Group companies through energy-saving analyses and support for individual projects. In fiscal year 2018, energy-saving analyses were conducted at five sites in the Asia–Pacific region and Greater China (PT. DIC Graphics' Karawang Plant in Indonesia, Siam Chemical Industry, DIC Colorants Taiwan Co., Ltd.; and Nantong DIC Color and Changzhou Huari New Material in the PRC. At the same time, a project was also launched whereby effective initiatives proposed by overseas sites are given "Good Job" accreditation and deployed horizontally at Group companies in Japan. This initiative also includes using the process of introducing best practices at production facilities as an opportunity to foster young human resources.

*Asia–Pacific Region*

The DIC Group has 22 sites in the Asia–Pacific region, which account for around 19.0% of the Group's total global $CO_2$ emissions. Regional production volume in fiscal year 2018 was down 9.1% from fiscal year 2017, although it was up 5 3% from the fiscal year 2013 base year. Principal factors behind this result were a change in the reporting boundary from the shift of one site to another reporting jurisdiction. Energy consumption by Group companies across the region decreased 2 6% from the previous fiscal year, but was 11.8% higher than in the base year, while $CO_2$ emissions declined 2.1% from fiscal year 2017, but were up 3 5% from fiscal year 2013. Indonesia is home to the Group's mother plant for pigments, production of which is comparatively energy-intensive and continues to rise. This pigments business accounts for more than 50% of energy consumption and $CO_2$ emissions in the Asia–Pacific region, underscoring its influence on results for the region as a whole. Accordingly, the Group promoted a variety of energy-saving and carbon-reducing initiatives, including replacing a portion of the fossil fuel (coal) used to fire boilers with PKS, a biomass fuel. In addition, the region is undergoing Energy-Saving Working Group energy-saving analyses by promoting use of external consultants such as the TEPCO Group. Successful energy-saving initiatives in India (at four sites belonging to DIC India) also contributed significantly to the reduction in energy consumption.

A regional ESH country head meeting is held annually at the office of DIC Asia Pacific in Singapore, with participants including country heads, the executive in charge of regional operations and pertinent individuals from the Responsible Care Department and the Production Management Department. The principal purposes of the meeting are to explain safety and environmental policies and discuss concrete action plans for the region in the subsequent fiscal year. This includes providing an explanation of the Group's policies for combating global warming, including its targets for the reduction of energy consumption and decarbonization, and determining related action plans. As part of its effort to ensure achievement of the $CO_2$ emissions target set for the global DIC Group, corporate headquarters assists local Group companies by formulating and implementing energy-saving plans; promoting ongoing energy-saving analyses to support the identification of energy-saving themes and the implementation of remedial measures; deploying a practical energy management manual and best practice case study materials to establish management practices and promote horizontal deployment; and launching and providing support for energy-saving and carbon-reduction projects at suitable sites.

## Energy-Saving Assessment Radar Chart for PT. DIC Graphics' Karawang Plant




Discussion with external consultants at PT. DIC Graphics' Karawang Plant (June 2018)

Energy-saving analysis at PT. DIC Graphics' Karawang Plant (June 2018)

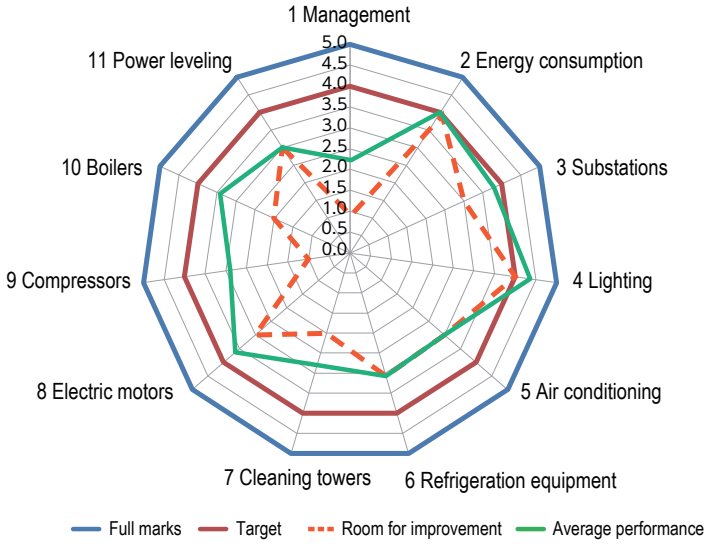
*Greater China*

The DIC Group's 18 sites in Greater China, which include R&D facilities, account for approximately 10% of the Group's total $CO_2$ emissions. While production volume in fiscal year 2018 was up 6.2% from the previous fiscal year and 7.6% from the fiscal year 2013 base year, $CO_2$ emissions across the region were down 6.9% from fiscal year 2017, but up 7.8% from the base year. Among factors contributing to the decline in $CO_2$ emissions were lower operating rates at plants responsible for energy-intensive products, including pigments; a change in the reporting boundary resulting from the inclusion of Guangzou Lidye Resin and steadfast energy-saving initiatives and increased productivity at production facilities. Regional $CO_2$ emissions were negatively impacted by higher production volume; increased output of energy-intensive products such as pigments and LC materials; and factors not related to production, including an increase in base load energy consumption attributable to the expansion of floor space at research facilities and higher operating rates for clean rooms.

Once annually, regional energy officers and ESH officers hold a joint ESH conference that is also attended by the executive in charge of regional operations and pertinent individuals from the Responsible Care Department and the Production Management Department. The conference includes providing an explanation of the Group's policies for combating global warming, including its targets for the reduction of energy consumption and decarbonization, setting a target for regional $CO_2$ emissions reductions and determining action plans. The conference also includes presentations introducing case studies and plans for future initiatives. The objective of the conference is to provide information on the status of regional energy management and energy-saving initiatives to help individual companies to enhance their performance.

Other efforts include promoting energy-saving analyses to gauge the status of energy management and the performance of energy -related equipment. This includes having local employees designated "energy masters" assess energy-saving promotion frameworks, actual energy consumption, the formulation of policies and management of targets, and the performance of key equipment. Findings are plotted on a radar chart to identify strengths and weaknesses and encourage remedial measures.

## Energy-Saving Assessment Radar Chart for Changzhou Huari New Material Co., Ltd.




Suggesting remedial measures

Energy-saving analysis at Changzhou Huari New Material

## Adoption of Renewable Energy by DIC Group Companies Overseas

Against a global trend toward decarbonization, including by popularizing the use of renewable energy, DIC Group companies in the Asia–Pacific region, Greater China and the Americas and Europe are making use of government subsidies and support to, for example, install biomass boilers and solar power systems. In fiscal year 2018, renewable energy used by DIC Group companies overseas amounted to 728,183 GJ, up 19.7% from 608,502 GJ in the previous fiscal year.

*PT. DIC Graphics (Karawang Plant) (Indonesia)*

### Project Launched to Reduce $CO_2$ Emissions by Switching from Coal to PKS

PT. DIC Graphics' Karawang Plant is a crucial facility for the production of pigments for inks and coatings for packaging, plastics and other applications, the production of which uses a significant amount of energy for boilers and water for washing. To date, the facility has primarily used coal, the combustion of which is extremely economical (approximately 1/5 the cost of heavy oil and 1/3 the cost of natural gas) and easy to obtain in Indonesia. Because the Karawang Plant accounts for 1/10 of the DIC Group's global $CO_2$ emissions, and because its production volume continues to expand, reducing the facility's energy consumption and finding low-carbon energy sources is a critical challenge. To this end, the plant kicked off a $CO_2$ emissions reduction project focused on exploring low-carbon alternatives to coal that identified PKS.

Because Indonesia is the world's second-largest producer of palm oil, PKS, a palm oil mill residue, are easy to secure in large quantities. Japan imports PKS for use as fuel for coal-fired electric power production facilities and biomass boilers. The project team determined that the calorific value of PKS, at approximately 4,000 kCal/kg, is comparable to that of coal used at the Karawang Plant.

In fiscal year 2017, the Karawang Plant earned certification under ISO 50001, the global standard for energy management systems. At the same time, the plant began replacing approximately 12% of the coal it used with PKS, realizing a reduction in annual $CO_2$ emissions of approximately 5,000 metric tonnes. In fiscal year 2018, the plant increased the percentage of PKS in its fuel mix to 25%, as a result of which annual $CO_2$ emissions declined by 10,000 metric tonnes, 15.0% lower than in fiscal year 2016, contributing to a decrease in global DIC Group $CO_2$ emissions of approximately 2.0%.

Coal and PKS are difficult to combine because they combust at different speeds. In addition, considerable effort is required to remove the clinker (waste) after combustion. Corporate headquarters plans to verify the effectiveness of a chemical that can be used to easily remove clinker at production facilities in Japan, after which it will deploy the chemical at the Karawang Plant. A consulting firm affiliated with a major Japanese electric power company has also been dispatched to the plant to conduct a multifaceted analysis including the energy situation and fuel costs in Indonesia and propose a long-term plan for reducing $CO_2$ emissions from independent electric power generation.

PKS to be used as fuel

*Siam Chemical Industry (Thailand)*

### Installation of Solar Panels Reduces $CO_2$ Emissions

Siam Chemical Industry, which manufactures a broad range of polymer products, including synthetic resins, continues to see rising demand for acrylic coating resins, underpinned by increases in automobile production. Thailand is seeking to diversify energy sources to reduce the country's dependence on natural gas to generate electric power. Energy from renewable sources is attracting considerable attention thanks to tax breaks offered by the Thai government. Against this backdrop, Siam Chemical Industry installed solar panels with a total generating capacity of 704 kW (annual output: 1,049 MWh) on the roofs of production buildings and warehouses at its plant in Samut Prakan Province. The solar panels commenced operation in July 2017. Electric power generated using these facilities is used on production lines and in offices.


Siam Chemical Industry (Thailand)


Solar panels installed on a roof

## VOICE We continue to actively promote the use of renewable energy.

I have been part of Siam Chemical Industry's maintenance team for approximately 13 years. In fiscal year 2017, I supervised our solar panel installation project. Examples of production facilities in Thailand adopting solar power are few, so determining how and where panels should be installed was challenging, but thanks to the help of many people we succeeded in completing the project. In fiscal year 2018, solar power accounted for 14% of the electric power we used, while our $CO_2$ emissions were down 500 metric tonnes from the fiscal year 2017 level.

Thanks to abundant sunshine, Thailand is highly suited to solar power. Under Thailand's current Power Development Plan, the company plans to boost its annual capacity for generating electric power generated using renewable energy to 18,176 MW by 2037. While solar power was initially to account for 10,000 MW, its weighting is increasing. Siam Chemical Industry will continue to monitor this trend, as well as explore further initiatives to expand our use of renewable energy.

Solar Cell Project Engineer and Maintenance Chief, Siam Chemical Industry Co., Ltd. **Kiatisak Malasita**

*Hainan DIC Microalgae (PRC)*

### Biomass Boiler Replaces Diesel-Fired Unit

Hainan DIC Microalgae, DIC Lifetec Co., Ltd.'s production base in the PRC, cultivates Spirulina, an edible blue–green algae that is attracting attention as a superfood, which it processes into nutritional supplements and natural food colorings. Until recently, the facility used a diesel-fired boiler to produce the steam necessary for its production processes, but in October 2016 it switched to a biomass boiler that uses waste rubber tree wood from the thinning of rubber forests as fuel. The new boiler was in operation for the duration of fiscal year 2018, resulting in a reduction of 680 metric tonnes in the facility's $CO_2$ emissions for the year, equivalent to 30.0% of its emissions in the previous year. This also accounted for 1.1% of the overall decrease in $CO_2$ emissions achieved by the DIC Group in Greater China in fiscal year 2018.

*Qingdao DIC Finechemicals (PRC)*

### Solar Power System Installation Helps Reduce Energy Consumption and $CO_2$ Emissions

Subsidiary Qingdao DIC Finechemicals, a manufacturer of base materials for TFT LCs, which it supplies to local customers, installed a solar power system that features panels on the roof of the company's plant building. The new system, which has a generating capacity of 440 kW, began operating in September 2017. Thanks to this installation, in fiscal year 2018 Qingdao DIC Finechemicals' output of solar power reached 490 MWh, largely in line with expectations, which was equivalent to approximately 15% of its energy consumption, and its annual $CO_2$ emissions declined by around 5.5%.

440 kW–capacity solar power system at Qingdao DIC Finechemicals

## VOICE We take a bottom-up approach to fostering the next generation of energy managers.

The success of energy-saving initiatives demands a true understanding of production floors and a willingness to implement remedial measures together with colleagues on the front lines. Our belief in the importance of a bottom-up approach is reflected not only in the activities of the Production Management Department but also in how we foster the next generation of energy managers, who will be responsible for energy-saving initiatives in the future. When conducting energy-saving analyses at a site in the Asia–Pacific region, we always involve young members of the site's working group. We also consciously seek to involve members of the project overseeing the horizontal deployment of the Good Job accreditation system. Because production processes at sites vary widely depending on the business, the horizontal deployment of initiatives is not always easy. This is especially true for overseas sites because the energy situation is different in every country and territory. However, the satisfaction of achieving a goal in collaboration with site staff is immense. Being a part of successful initiatives can completely change one's outlook.

Energy Manager, Production Management Department **Satoshi Abe**

*Europe and the Americas*

The DIC Group has 113 sites in Europe and the Americas (this category also includes sites in Africa), which account for around 33% of the Group's total $CO_2$ emissions. Despite an increase in production volume of 3.0% from the previous fiscal year and 3.4% from the fiscal year 2013 base year, the Group's $CO_2$ emissions in Europe and the Americas in fiscal year 2018 were held to a 1.4% increase from fiscal year 2017 and were down 23.1% from the base year. Factors behind this result included the further integration of production facilities and execution of measures to raise production efficiency, the installation of additional solar power facilities and the implementation of energy-saving initiatives and measures to improve productivity.

With the aim of lowering regional $CO_2$ emissions, the DIC Group not only implements key measures such as making use of biomass energy (landfill biogas), solar and small hydroelectric power, and employing outsourcing, including contracting energy-efficiency consultants to advance the reduction of energy consumption, but also continues to promote the integration of its production facilities worldwide. In fiscal year 2018, regional $CO_2$ emissions were down 23.1% from the fiscal year 2013 base year, contributing significantly to the reduction of the Group's global emissions. Going forward, the Group will continue to implement ambitious energy-saving and decarbonization initiatives across Europe and the Americas.

## Initiatives in Areas Other than Production

In fiscal year 2017, DIC once again promoted efforts in Japan in line with the country's Cool Biz and Warm Biz campaigns, official efforts to reduce electric power consumption by limiting the use of air conditioning in summer and winter through measures such as the introduction of more relaxed office dress codes. The Company also continued to promote initiatives aimed at reinforcing employees' awareness of the importance of lowering energy consumption, including replacing aging light fixtures and air conditioning equipment with newer, high-efficiency models that satisfy standards set by the Energy Conservation Center, Japan (ECCJ) for its Top Runner program, turning off lights when not needed and implementing mandatory 22°C and 28°C summer air conditioning settings.

## Support for the TCFD

The DIC Group is highly conscious of the international community's accelerated efforts to promote decarbonization since the adoption of the Paris Agreement. As a manufacturer of fine chemicals, the Group works to help curb $CO_2$ emissions through its manufacturing activities and at the same time to effectively assess risks and opportunities associated with climate change while promoting Groupwide efforts to address related challenges, including through the development of products that contribute to decarbonization. In May 2019, DIC declared its support for the Task Force on Climate-related Disclosures (TCFD)*, pledging to disclose climate-related information in line with TCFD recommendations going forward.

* The TCFD was established under the auspices of the Financial Stability Board (FSB) and announced in July 2017.

| | |
|---|---|
| **Governance** | **Governance around climate-related risks and opportunities**<br>• The Sustainability Committee, which answers directly to the president and CEO and meets a minimum of three times annually, periodically deliberates on responses to climate change, including setting targets for the reduction of $CO_2$ emissions and the formulation of annual activity plans.<br>• The Sustainability Committee reports on the details of its deliberations to the Board of Directors.<br>• The Group's medium-term sustainability policies are decided by the Board of Directors. |
| **Strategy** | **Actual and potential impacts of climate-related risks and opportunities on businesses, strategy and financial planning**<br>• While DIC is cognizant of transition risks (e.g., carbon price trends and renewable energy) and physical risks (e.g., the impact of extreme weather events on production) associated with climate change, it also recognizes these as business opportunities (e.g., to develop and popularize low-carbon products and services) and continues to promote business activities.<br>→ Related information: Climate Change (page 77), Business Models that Respond to Social Imperatives (page 134) and Risk Management (page 44)<br>• In addition to existing scenarios used to analyze transition risk, i.e., to grasp the impact on costs of, among others, carbon taxes and surcharges on purchased electric power, DIC is currently conducting a new original analysis, information on which is slated to be included in DIC Report 2020. |
| **Risk management** | **Processes used to identify, assess and manage climate-related risks**<br>• In fiscal year 2018, DIC established the Risk Management Working Group, a subsection of the Sustainability Committee charged with abstracting priority risks and reinforcing responses.<br>• In June 2018, the Sustainability Working Group was established as a subsection of the Sustainability Committee under the supervision of the ESG Department. The Sustainability Working Group is charged with assessing materiality (potential to negatively impact the Group's financial standing) from a broader perspective, evaluating priority risks and abstracting issues and promoting countermeasures.<br>→ Related information: Risk Management (page 44) |
| **Metrics and targets** | **Metrics and targets used to assess and manage relevant climate-related risks and opportunities**<br>• DIC manages greenhouse gas emissions and reports on the results of these efforts in the DIC Report.<br>Related information: Climate Change (page 77) |

## VOICE We are promoting efforts to reduce greenhouse gas emissions based on our vision of the future role of energy in society.

The energy situation facing companies today is changing at a dizzying pace. Further complicating matters, approaches to decarbonization vary considerably. While the obvious solution to the need to reduce greenhouse gas emissions is to move away from fossil fuels and toward electrification, $CO_2$ emissions factors differ depending on the energy source, i.e., whether the electric power is generated using natural gas or renewable energy. For this reason, ensuring an optimal fuel mix is not an easy task. Moreover, strategies for introducing renewable energy will change as technologies related to hydrogen energy advance. DIC has set a target for reducing $CO_2$ emissions across the global DIC Group of 30% from the fiscal year 2013 level by fiscal year 2030. Our mission over the next decade is to determine the most rational and efficient approach to achieving this target. To this end, we have taken a long-term, objective perspective on the future role of energy in society. We will incorporate this perspective into our strategies, while at the same time keeping a close eye on technological progress and national energy policies.

Efficiency Manager, Production Management Department (Energy Management Planning and Promotion Officer) **Kazuo Kawaguchi**

# Preventing Environmental Pollution

## Basic Approach

The DIC Group works to grasp the environmental impact of its operating activities and promotes systematic measures to reduce its environmental footprint. The Group also advances efforts aimed at preventing environmental pollution.

### Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objective of initiatives | Goals for fiscal year 2018 | Achievement in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Reduce VOC emissions into the air. | • Reduce VOC emissions into the air.<br>• Establish reduction targets for individual domestic sites and promote related initiatives (cumulative total of targets for domestic production facilities: 357 metric tonnes (-3.7% from fiscal year 2017)). | DIC Group (Japan): Total emissions of 366 metric tonnes (-1.3% from fiscal year 2017) | ★★★ | • Reduce VOC emissions into the air.<br>• Establish reduction targets for individual domestic sites and promote related initiatives (cumulative total of targets for domestic production facilities: 366 metric tonnes (essentially level with fiscal year 2017)). |

## Basic Policy Framework for Implementation

As chemicals companies handle a considerably greater volume and more diverse range of chemical substances than companies in other industries, they must be extremely vigilant to prevent discharges of such substances into the environment. DIC has worked to reduce emissions into the air, water and soil of substances designated under the Pollutant Release and Transfer Register (PRTR) and of substances targeted under a voluntary scheme created by the Japan Chemical Industry Association (JCIA) since fiscal year 2000, while other DIC Group companies in Japan have done so since fiscal year 2005.

* The JCIA is a general incorporated association. As one of Japan's major industry organizations, JCIA is a member of the International Council of Chemical Associations and pursues the healthy development of the chemical industry with other chemical-industrial organizations around the world.

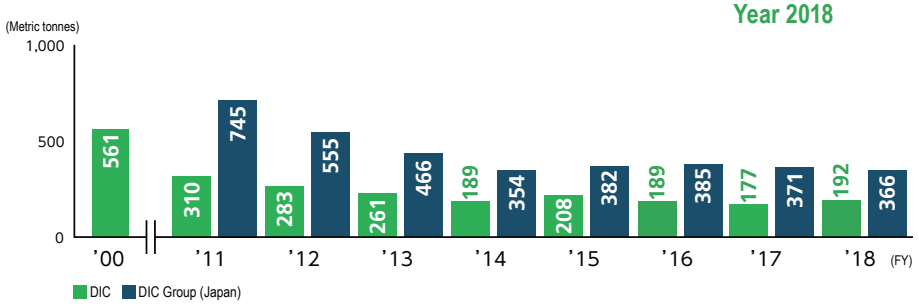
## Principal Initiatives in Fiscal Year 2018

### 1 Reducing Emissions of VOCs

Having succeeded in achieving a voluntary target—set in fiscal year 2007—for reducing emissions of VOCs into the air of 30% by fiscal year 2010 (using fiscal year 2000 as the base year) for the DIC Group in Japan, domestic Group companies continue to pursue steady annual reductions through facility improvements and emissions management.

In fiscal year 2018, emissions of VOCs into the air by DIC totaled 192 metric tonnes, an increase of 8.5% from fiscal year 2017, while those of the DIC Group in Japan, at 366 metric tonnes, were down 1.3%. The principal factor behind this result was the firm establishment of initiatives to reduce emissions of VOCs at the Saitama Plant. Overseas, Group companies in Greater China and the Asia–Pacific region continued to promote ongoing emissions reductions. In the PRC, in particular, the Group is updating equipment and stepping up emissions management practices in response to the tightening of local regulations governing emissions of VOCs.

**Emissions of Targeted Chemical Substances into the Air**
(551 Substances, Including those Designated by the PRTR*, and One Substance Group)




**Emissions of VOCs into the Air in Fiscal Year 2018**

| DIC | DIC Group (Japan) |
|---|---|
| +8.5% from fiscal year 2017 | -1.3% from fiscal year 2017 |

* Includes 462 class-1 chemical substances designated under Japan's PRTR scheme.

In fiscal year 2018, the DIC Group monitored discharges of 462 class-1 chemical substances designated by the PRTR and of 89 PRTR-designated chemical substances (other than class-1 substances) and one substance group (chain hydrocarbons with up to 4–8 carbon atoms) targeted by the JCIA. During the period, DIC and DIC Group companies in Japan produced or used 108 and 120 of these substances, respectively, in units exceeding 1.0 metric tonne.

### Newly Installed Thermal Combustion System at DIC Graphics (Guangzhou) Facilitates the Efficient Treatment of VOCs

In August 2017, DIC Graphics (Guangzhou) installed a regerative thermal oxidizer, a system for thermally decomposing and deodorizing VOCs in exhaust gas from production processes. The new system fills the combustion chamber with a ceramic material that absorbs heat, making it possible to spontaneously combust VOC gas streams and at a high temperature using only a small amount of auxiliary fuel. In the past, activated carbon adsorption was used to destroy VOCs. Because it facilitates the efficient thermal decomposition and deodorization of medium- and low-density VOCs, the system has contributed to a significant reduction in energy consumption and maintenance requirements.

Regenerative thermal oxidizer

### Number of Targeted Chemical Substances Used and/or Produced in Amounts Exceeding 1.0 Metric Tonne in Fiscal Year 2018

DIC: **108**

DIC Group (Japan): **120**

### Environmental Emissions of Targeted Chemical Substances (551 Substances, Including those Designated by the PRTR, and One Substance Group) in Fiscal Year 2018

| | | |
|---|---|---|
| DIC | Emissions into the air | 192 metric tonnes |
| | Emissions into water | 27 metric tonnes |
| | Emissions into soil | 0 metric tonnes |
| DIC Group (Japan) | Emissions into the air | 366 metric tonnes |
| | Emissions into water | 28 metric tonnes |
| | Emissions into soil | 0 metric tonnes |

### Targeted Chemical Substances for Which Emissions Exceeded 10.0 Metric Tonnes in Fiscal Year 2018

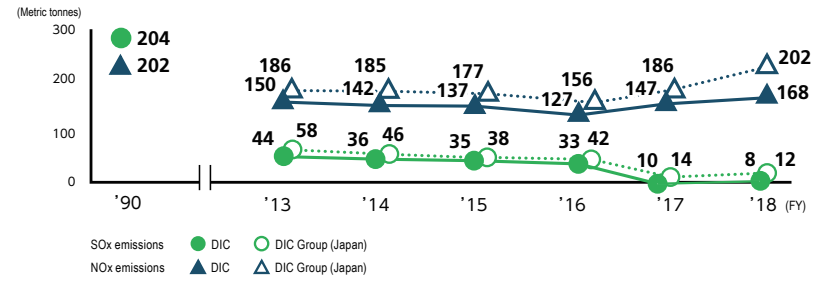
| Substance | DIC | DIC Group (Japan) |
|---|---|---|
| | Emissions into the environment | Emissions into the environment |
| Ethyl acetate | 71 metric tonnes | 121 metric tonnes |
| Methyl ethyl ketone | 27 metric tonnes | 46 metric tonnes |
| Toluene | 41 metric tonnes | 47 metric tonnes |
| Styrene | 7 metric tonnes | 36 metric tonnes |
| Acetone | 8 metric tonnes | 34 metric tonnes |
| Propyl alcohol | 4 metric tonnes | 19 metric tonnes |
| *N*-methylpyrrolidone | 13 metric tonnes | 13 metric tonnes |
| Butyl acetate | 0 metric tonnes | 10 metric tonnes |

### 2 Reducing SOx, NOx and COD

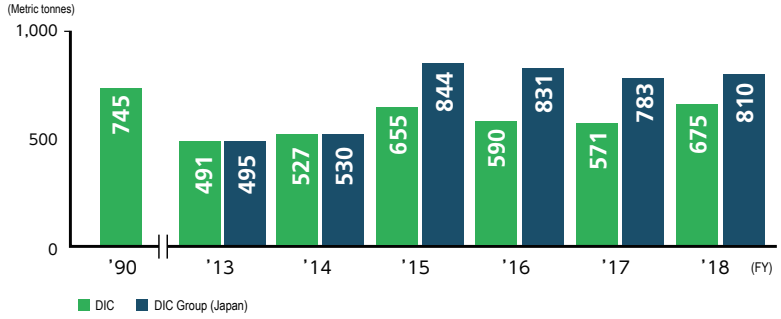
Taking fiscal year 1990 as the base year, DIC Group companies in Japan have worked to reduce sulfur oxide (SOx) and nitrogen oxide (NOx) emissions—key causes of acid rain—from boilers. The Group is also working to reduce chemical oxygen demand (COD), an indicator of water quality deterioration in wastewater, thereby enhancing its water quality management.

Overseas, Group companies are also switching fuel from diesel to natural gas and replacing diesel-fired and heavy oil–fired boilers with waste wood–fired biomass boilers at sites with appropriate infrastructure. To reduce COD, the Group is promoting the reuse of water and installing environment-friendly closed-loop recycling and wastewater treatment systems at its sites that purify water to a level that exceeds the legally mandated level.

### SOx and NOx Emissions Volumes




### COD



### 3 Complying with Regulations Governing Emissions of Dioxins

In Japan, the DIC Group monitors emissions of dioxins from waste incinerators that produce these byproducts, a group of compounds with varying toxicities. At present, the Group has six such facilities. Continuous efforts to reduce emissions levels have enabled the Group to achieve results that greatly surpass standards specified in the Law Concerning Special Measures Against Dioxins.

#### Dioxin Emissions from DIC Group Incinerators in Japan

| Site | Scale of facility (Incinerating capacity) | Waste gas | | Wastewater | |
|---|---|---|---|---|---|
| | | Standard (ng-TEC/Nm³) | Emissions reported in fiscal year 2018 (ng-TEC/Nm³) | Emissions reported in fiscal year 2017 (ng-TEC/l) | Standard (ng-TEC/l) |
| Chiba Plant (DIC) | Approx. 3.0 metric tonne/hr | 5 | 0.560 | 10 | 0.043 |
| Hokuriku Plant (DIC) | 0.28 metric tonne/hr | 5 | 0.00016 | 10 | 0.0053 |
| DIC Interior Co., Ltd. | Approx. 0.1 metric tonne/hr | 10 | 1.3 | NA | – |
| Hokkaido Plant (DIC Kitanihon Polymer Co., Ltd.) | Approx. 0.2 metric tonne/hr | 10 | 0 | NA | – |
| Tohoku Plant (DIC Kitanihon Polymer Co., Ltd.) | Approx. 0.2 metric tonne/hr | 10 | 0.00088 | NA | – |
| Harima Plant (Seiko PMC Corporation) | Approx. 0.2 metric tonne/hr | 10 | 0 | NA | – |

### 4 Preventing Marine Pollution Resulting from Waste Plastic

In recent years, waste plastic and marine plastics have become issues of major concern worldwide. The DIC Group works to prevent pollution of the environment, particularly through measures to preclude leaks of raw materials from production facilities and the recycling of waste plastic generated in production processes. In fiscal year 2018, approximately 60% of waste plastic generated by the Group was recycled. Approximately 90% of this was reused, including energy recovered from fuel utilization. Looking ahead, we will step up efforts to ensure the appropriate management and disposal of waste plastic at sites, as well as to organize projects involving the various departments in the packaging materials business tasked with working actively to, among others, promote the collection of plastics and shift to alternative and/or biodegradable materials.

### 5 Ensuring the Appropriate Collection and Storage of PCBs

The DIC Group in Japan continues working to ensure the appropriate collection, storage and management of equipment containing polychlorinated biphenyls (PCBs), including older-model transformers, capacitors and stabilizers, in accordance with the Law Concerning Special Measures Against PCB Waste. The Group also ensures that PCBs are disposed of in accordance with the practices of Japan Environmental Storage & Safety Corporation (JESCO).

### 6 Responding to Asbestos Risks

The DIC Group ensures awareness of potential risks associated with asbestos during demolition or when retrofitting equipment, and takes care to respond in an appropriate manner. In fiscal year 2018, materials containing asbestos, including insulation, were discovered during the removal of equipment. These materials were removed and disposed of as required by law.

## TOPIC

### PT DIC ASTRA Chemicals Wins Award under DKI–Jakarta–Company Environment Performance Appraisal Program

In fiscal year 2018, PT DIC ASTRA Chemicals won an award from the Special Capital Region of Jakarta (Daerah Khusus Ibokota Jakarta (DKI Jakarta) in Indonesian) under the DKI–Jakarta–Company Environment Performance Appraisal Program. High marks were given to the company's efforts to comply with Indonesia's environmental management laws and related regulations, as well as the excellence of its systems for managing the treating of industrial effluents and air pollution. These awards are conferred on companies demonstrating excellence in the area of environmental protection based on the results of environmental performance audits of all companies in the Special Capital Region, which are conducted by the Jakarta government. PT DIC ASTRA Chemicals was one of only eight award winners chosen from among more than 1,000 Jakarta-based manufacturers.

# Reducing Industrial Waste

## Basic Approach

In addition to recycling and reuse of materials, the DIC Group works to minimize the impact of its industrial waste disposal practices.

### Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objectives of initiatives | Goals for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| • Reduce industrial waste disposed of as landfill ("zero emissions").<br>• Reduce industrial waste generated by production facilities. | Implement measures at each site with the following goal:<br>• Reduce industrial waste disposed of as landfill (for sites that have achieved "zero emissions," maintain that status) (cumulative total of targets for domestic production facilities: 147 metric tonnes (-1% from fiscal year 2017)). | • Industrial waste disposed of as landfill DIC Group (Japan): 204 metric tonnes (+38.0% from fiscal year 2017)<br>• Industrial waste generated by production facilities DIC Group (Japan): 32,243 metric tonnes (-0.3% from fiscal year 2017) | ★ | • Reduce industrial waste disposed of as landfill. DIC Group (Japan): 196 metric tonnes (-5.0% from fiscal year 2016)<br>• Reduce industrial waste generated by production facilities. DIC Group (Japan): 31,698 metric tonnes (-2.0% from fiscal year 2018). |
| Promote recycling. | Promote recycling at DIC Group companies and set a target for resource recycling rate. | • DIC Group (Japan) resource recycling rate: 93.0% (essentially level with fiscal year 2017)<br>• A target was set for resource recycling rate. | ★★ | Promote recycling at DIC Group companies. |

## Basic Policies and Framework for Implementation

The DIC Group aims to minimize industrial waste and promote the recycling and reuse of materials. Since fiscal year 2001, DIC has promoted zero emissions initiatives* aimed at reducing industrial waste disposed of as landfill. DIC has deployed zero emissions initiatives at DIC Group companies in Japan since fiscal year 2008. With the aim of expanding efforts across the global DIC Group, in fiscal year 2013 DIC began to introduce management by objectives (MBO) at overseas Group companies. DIC subcontracts the treatment of industrial waste to be disposed of as landfill, and ensures that waste is properly treated by promoting strict compliance and on-site confirmation by designated departments at each of its production facilities.

* Zero emissions initiatives: DIC is promoting initiatives aimed at reducing the volume of waste disposed of as landfill by 95% from the fiscal year 2000 level.

## Principal Initiatives in Fiscal Year 2018

### Reducing Industrial Waste Disposed of as Landfill

The DIC Group works actively to reduce its disposal of industrial waste as landfill by recycling cinders, dust and sludge, among others, into roadbed materials and raw materials for cement, using thermal recycling to recover waste heat and reducing production losses by increasing yields.

## Initiatives by the DIC Group in Japan

In fiscal year 2018, the total volume of industrial waste disposed of as landfill by the DIC Group in Japan amounted to 204 metric tonnes. Owing to market deterioration, DIC Interior Co., Ltd. and a number of other companies were forced to incinerate unnecessary items that would previously have been recycled. The resulting ash was disposed of as landfill. In fiscal year 2019, all DIC Group companies in Japan will step up the implementation of initiatives aimed at achieving zero emissions.

DIC Group companies in Japan also continued working to ensure the appropriate disposal of PCBs. In addition, these companies promoted the rigorous management of unprocessed waste, including transformers, capacitors and stabilizers, through proper collection and storage in dedicated warehouses.

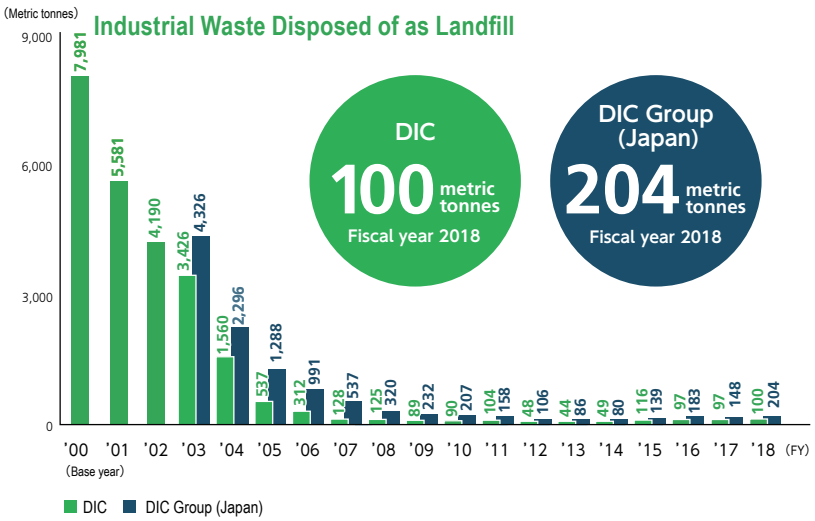
## Industrial Waste Generated in Fiscal Year 2018

DIC Group (Japan)

**-0.3%**

from fiscal year 2017

## Industrial Waste Disposed of as Landfill




DIC: 100 metric tonnes, Fiscal year 2018

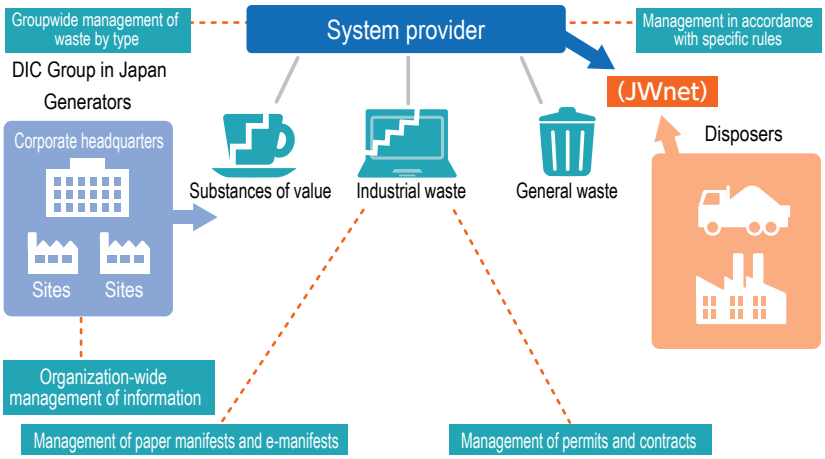
DIC Group (Japan): 204 metric tonnes, Fiscal year 2018

## Deployment of Comprehensive Industrial Waste Management System

In fiscal year 2016, the DIC Group in Japan explored the introduction and conducted tests of a comprehensive industrial waste management system for use with the country's Electronic Manifest (e-Manifest) system. The e-Manifest system manages the movement of industrial waste by facilitating the electronic transmission of manifest information and tracking of the flow of waste from generation to final disposal. Unlike paper manifests, the e-Manifest system offers easy data input and eliminates the need for administrative reporting and storage by generators.

With anticipated revisions to Japan's Waste Management Law expected to increase demand for greater manifest data transparency, DIC resolved to introduce an industrial waste management system that would facilitate the efficient collection of data while also ensuring legal and regulatory compliance. The Group currently uses the system at 13 sites in Japan and intends to gradually expand deployment in the years ahead.

### Comprehensive Industrial Waste Management System




## VOICE We are working to further expand adoption of the comprehensive industrial waste management system.

As a site Responsible Care officer, I oversaw adoption of GENESYS-ECO at the plant where I work. We were the front-runner, so our experience helped identify issues ahead of installation Groupwide, making it possible to customize the system to suit Group requirements. I was subsequently transferred to the Responsible Care Department, where I got to see the process from the opposite perspective as part of the team in charge of plants across Japan. The advantage of this system is that in addition managing e-manifests, it does things like track expiration dates of permits for transporters and intermediate processors, which both reduces labor requirements and ensures compliance. I look forward to helping make necessary tweaks to facilitate even more effective use in the future.

Safety and Environment Group, Responsible Care Department **Emi Wakabayashi**

## Initiatives by the DIC Group Overseas

In addition to ensuring the disposal of industrial waste in a manner that complies with national and regional legal and regulatory requirements, the DIC Group's overseas production facilities work to minimize industrial waste through the voluntary recycling and reuse of materials.

In fiscal year 2018, DIC Group companies in the Americas and Europe, Greater China and the Asia–Pacific region introduced new waste treatment facilities and promoted the horizontal deployment of best practices, including those aimed at improving production processes, with the aim of achieving reductions in industrial waste generated that exceeded nationally and regionally mandated levels. Nonetheless, the total volume of industrial waste generated by DIC Group production facilities overseas rose 5.7%. Looking ahead, regional headquarters in these areas will focus on further reinforcing compliance with local laws and regulations while at the same time cooperating with DIC's Responsible Care and Production Management departments to analyze the reasons for this increase with the aim of curbing the generation of industrial waste and reducing the volume of industrial waste disposed of as landfill.

## Industrial Waste Discharged by the Global DIC Group in Fiscal Year 2018

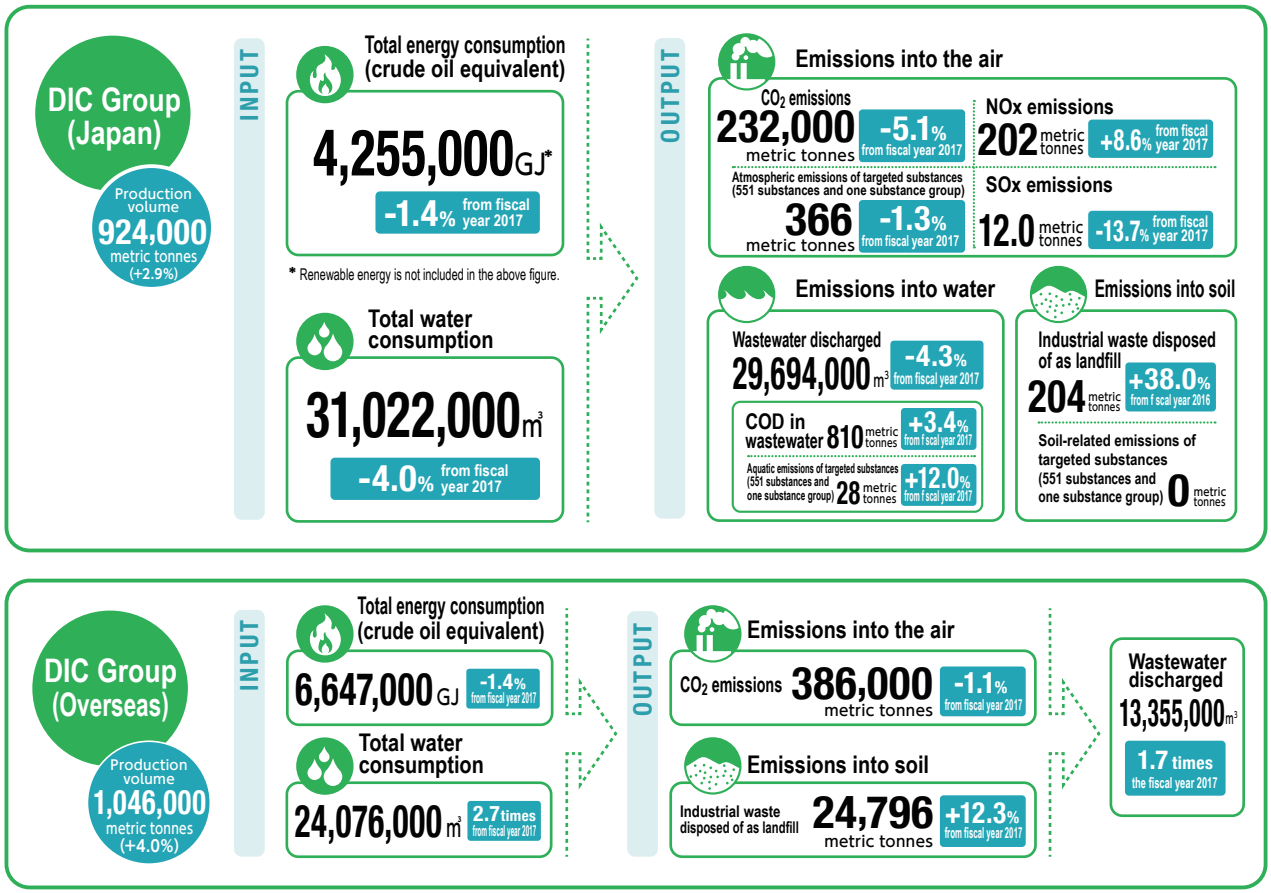
The definition of "industrial waste" and the methods used to dispose of such waste vary in different countries and regions, including whether the term encompasses toxic and nontoxic substances, and hazardous and nonhazardous substances. The DIC Group appropriately manages and processes industrial waste based on degree of danger in accordance with the laws of the countries and regions in which its sites are located.

| | | Volume generated (Metric tonnes) | Volume generated by production facilities (Metric tonnes) | Volume recycled (Metric tonnes) | Waste heat recovered (Metric tonnes) | Waste heat not recovered (Metric tonnes) | Volume disposed of as landfill (Metric tonnes) |
|---|---|---|---|---|---|---|---|
| Toxic | Japan | 4.621 | 4,621 | 2,493 | 1,901 | 223 | 4 |
| | Overseas | 38,801 | 32,561 | 20,315 | 3,538 | 11,362 | 3,586 |
| Nontoxic | Japan | 40,369 | 27,622 | 18,831 | 18,570 | 2,769 | 199 |
| | Overseas | 35,182 | 34,293 | 8,541 | 435 | 4,816 | 21,390 |
| Aggregate | Japan | 44,990 | 32,243 | 21,324 | 20,471 | 2,992 | 204 |
| | Overseas | 73,984 | 66,854 | 28,856 | 3,974 | 16,178 | 24,976 |
| Total | | 118,973 | 99,097 | 50,180 | 24,444 | 19,169 | 25,180 |

## Environmental Impact of the DIC Group's Operating Activities

The DIC Group quantifies the environmental inputs (consumption of energy and other resources) and outputs (emissions into the environment) of its operating activities, and uses its findings to formulate comprehensive and efficient strategies for reducing its environmental footprint.

The chart below is a comprehensive illustration of the environmental impact of the DIC Group's domestic operating activities in fiscal year 2018. The chart shows environmental impact for two input items (total energy consumption and total water consumption) and six output items (emissions of 551 chemical substances (including those designated under the PRTR*1) and one substance group*2, emissions of $CO_2$, emissions of NOx, emissions of SOx, COD in wastewater and industrial waste disposed of as landfill.)




*1 The PRTR is a scheme in Japan for assessing, aggregating and disseminating data on the sources of hazardous chemicals, amounts released into the environment and amounts transferred off-site from industrial establishments via waste products.

*2 The "551 substances and one substance group" comprises 462 chemical substances designated by the PRTR and 89 substances and one substance group targeted for study by the JCIA.

# Managing Water Resources

## Basic Approach

The DIC Group maintains a firm grasp of water risks relevant to the Group's operations and promotes various initiatives designed to ensure the effective use of water resources.

### Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objective of initiatives | Goals for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Maintain a firm grasp of water risks relevant to DIC Group operations and ensure the effective use of water resources. | • Further advance efforts to centralize data for fresh water withdrawn, water used and wastewater discharged.<br>• Promote the conservation and effective use of water resources. | • The scope of data collection was expanded.<br>• Steps were taken to promote the conservation and effective use of water resources. | ★★<br>★★ | • Further advance efforts to centralize data for fresh water withdrawn, water used and wastewater discharged.<br>• Promote the conservation and effective use of water resources. |

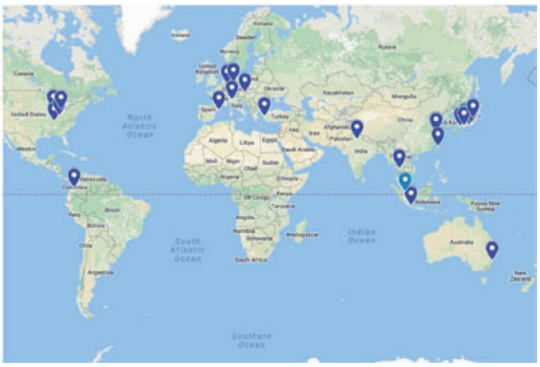
## Principal Initiatives in Fiscal Year 2018

Usable fresh water accounts for only around 0.01% of the planet's total fresh water resources. Accordingly, finding effective ways to conserve and manage water resources is a crucial global challenge. The DIC Group withdraws fresh water (tap water and industrial water) for use in production processes and air conditioning and for drinking, among others. The Group also discharges wastewater—after purifying it in accordance with internal standards that exceed official standards in the countries and territories where it has operations—into rivers and other fresh water bodies. In Japan, the Central Research Laboratories, in Chiba Prefecture, recovers purified wastewater (graywater) and reuses it on-site in research, as a result of which it currently discharges no wastewater. The Group also promotes the recycling and reuse of water to reduce its impact on water resources.

In fiscal year 2018, the Group continued to promote efforts to improve production processes, share information and centralize data on fresh water withdrawn, water used and wastewater discharged. Fresh water withdrawn by the global DIC Group in the period increased 33.4% from the fiscal year 2017 level, to 55,098,000 $m^3$, comprising withdrawals by the Group in Japan (including the parent company) of 31,022,000 $m^3$, down 4.0%, and by Group companies overseas of 24,076,000 $m^3$, up 168.0%. Wastewater discharged by the global DIC Group in fiscal year 2018 rose 10.9%, to 43,049,000 $m^3$.

Effective from fiscal year 2017, the Group adopted the GRI's guideline* for collecting data on water withdrawn and used its water risk assessment tool to analyze initial water risk at 38 sites worldwide, which account for 75.0% of its global production. With the aim of enhancing its ability to manage water resources, the Group also commenced a review of the status of water recycling efforts. Looking ahead, the Group will continue working to enhance initiatives designed to help protect and ensure the effective use of precious water resources.

* Included in the GRI's G4 Sustainability Reporting Guidelines



Water risk map

### Siam Chemical Industry Promotes the Recycling of Wastewater

Siam Chemical Industry uses approximately 243 $m^3$ of water resources per day, with 45% (approximately 109 $m^3$) used in manufacturing and 55% (approximately 135 $m^3$) discharged as wastewater. Using a water recycling facility, the company has endeavored to treat and reuse this wastewater. In fiscal year 2016, the company installed a cleaning tower capable of recycling 20 $m^3$ per hour, as a result of which it currently recycles 40–50 $m^3$ of wastewater daily. Looking ahead, the company will continue promoting initiatives aimed at advancing the recycling of water resources.

### Scope of Reporting for the Withdrawal of Fresh Water and Discharge of Wastewater

Effective from fiscal year 2017, the DIC Group adopted a new format that calls for gathering data on the withdrawal of fresh water by source and the discharge of wastewater by destination. With this change, the Group also began calculating water recycled, but difficulties with measurement and data collection prevented a calculation of the total volume. Going forward, the Group will take steps to ensure the accuracy of this calculation.

**Fresh Water Withdrawn by the Global DIC Group in Fiscal Year 2018**

**55,098,000 m³**

**+33.4%**
from fiscal year 2017

**Wastewater Discharged by the Global DIC Group in Fiscal Year 2018**

**43,049,000 m³**

**+10.9%**
from fiscal year 2017

**Fresh water withdrawn (1,000 m³)**

| | DIC Group in Japan | Global DIC Group |
|---|---|---|
| Surface water | 15,248 | 19,790 |
| Groundwater | 6,116 | 7,844 |
| Rainwater | 0 | 0 |
| Wastewater generated by other organizations | 2,178 | 3,335 |
| Tap water/industrial water | 7,458 | 24,057 |
| Others | 22 | 72 |
| Total | 31,022 | 55,098 |
| Total in fiscal year 2017 | 32,327 | 41,308 |
| Change from previous fiscal year | -4.0% | 33.4% |

**Wastewater discharged (1,000 m³)**

| | DIC Group in Japan | Global DIC Group |
|---|---|---|
| Rivers | 18,871 | 21,139 |
| Oceans | 7,077 | 7,078 |
| External treatment facilities | 3,731 | 10,377 |
| Below ground | 0 | 3 |
| Third parties | 0 | 0 |
| Others | 14 | 4,451 |
| Total | 29,694 | 43,049 |
| Total in fiscal year 2017 | 31,025 | 38,822 |
| Change from previous fiscal year | -4.3% | 10.9% |

### Soil and Groundwater Pollution Studies

Japan's Water Pollution Control Act was revised in 2012 to tighten structural standards governing equipment installed to prevent groundwater contamination by chemical substances. In addition to complying strictly with this Act and with the Soil Contamination Countermeasures Act, the DIC Group in Japan implements soil and groundwater surveys and countermeasures as necessary and assesses related environmental and safety risks.

## TOPIC

### Nantong DIC Color Invests in Sewerage Management and Status Report System

On July 1, 2015, the administrative committee of the Nantong Economic & Technological Development Area (NETDA) in the PRC announced sewerage system management measures with the aim or ensuring its ability to effectively supervise companies occupying sites in NETDA with such systems and installed electric gates at drainage pipe openings. In November 2016, DIC Group company Nantong DIC Color invested approximately Rmb124,000 in a sewerage management and status report system that stops the system automatically in real time if excessive amounts of pollutants are generated and effectively controls excess discharge, facilitating the advanced management of its sewerage system.

# Biodiversity

## Basic Approach

The DIC Group works to grasp the impact of its operating activities on biodiversity and to use land and natural capital in a sustainable manner.

## Preserving Biodiversity

### *Protecting Satoyama* Areas*

The DIC Group recognizes the preservation of biodiversity as a critical challenge. As part of DIC Management School, the Group's training module for senior management in Japan, in January 2011 a lecture was given by an outside expert on the relationship between corporate activities and biodiversity. The lecture was attended by 85 executives from corporate headquarters, as well as from plants and Group companies across the country, and prompted the launch of a wide range of related initiatives. For example, the same year brought the launch of an initiative designed to ensure an effective grasp of the relationship between the Group's operating activities and biodiversity at all stages of its products' life cycles, from R&D and the procurement of raw materials through to end-of-life disposal or recycling. In April 2011, experts from the Chiba Biodiversity Center, a prefectural government organization, observed the natural forest and gardens on the 30-hectare site in Sakura, Chiba Prefecture, occupied by the Central Research Laboratories and the Kawamura Memorial DIC Museum of Art, giving DIC's biodiversity management efforts high marks and offering advice for future initiatives.

From the beginning, DIC has used a closed system for circulating and reusing groundwater for the Central Research Laboratories and hired a waste processing firm to ensure no wastewater escaped from the site. The site's *satoyama* landscape makes it an ideal home for 200 tree and 500 flower varieties, as well as for an abundance of other wildlife, including birds and insects. Loved by the local community, the site has welcomed approximately 200,000 visitors annually since the opening of the Kawamura Memorial DIC Museum of Art in 1990.

* *Satoyama* is a Japanese term applied to the area between mountain foothills and arable flat land.

The forest and gardens of the site occupied by the Central Research Laboratories and Kawamura Memorial DIC Museum of Art is always alive with seasonal flowers and foliage.

### *Establishment of a Biodiversity Satellite*

The lush greenery of the Central Research Laboratories boasts a diverse range of naturally growing trees, including cedar, sawtooth oak and Japanese chinquapin. To preserve the natural environment, visitors to the site are prohibited from collecting plants and wildlife and are instead encouraged to enjoy the pristine natural scenery as is. In cooperation with the Chiba Biodiversity Center, the Kawamura Memorial DIC Museum of Art established a biodiversity satellite, a special display area in a small rest cabin on the site. Designed with the aim of fostering greater understanding of the importance of biodiversity, the satellite features permanent exhibits, including information panels and other materials related to biodiversity prepared by the organization, as well as introduces rare species native to Chiba and provides information on prefectural biodiversity initiatives.


Biodiversity satellite

### *DIC's Saitama Plant Focuses on Being a Home for Fireflies*

In addition to being a facility where employees can realize their full potential, DIC's Saitama Plant, which manufacturers LCs, water-based inks, adhesive tapes and magnetic tapes, among others, endeavors to be a home for fireflies and as such to coexist in harmony with the local environment. As a first step to achieving this goal, an ecosystem survey was conducted at the facility from April through October 2018. With the aim of improving the site's detention basin area of the site, from late May through June Saitama-Ken Environmental Analysis & Research Association and iinet Saitama, an NPO focused on biodiversity, conducted a preliminary survey of plants, birds, aquatic life and mammals inhabiting the site's detention basin area. Based on the findings of the survey, the plant will prepare a map of living creatures on the site, transform the detention basin into a biotope and implement other initiatives that will ensure the site remains a place of recreation and relaxation for employees.

Survey of detention basin and oil separator

Installing a sensor camera

# Safety in Logistics

***The DIC Group works with logistics partners to minimize risks, including by supplying information needed for the shipping/transport of its products.***

## Responsible Logistics

### Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objective of initiatives | Goal for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Reduce $CO_2$ emissions attributable to logistics (Scope 3). | Reduce $CO_2$ emissions attributable to logistics by 1.0% by promoting modal shift and improving transport efficiency. | • Energy consumption per unit of production attributable to logistics declined 1.0%.<br>• $CO_2$ emissions attributable to logistics declined 10.0%. | ★★<br>★★ | • Reduce $CO_2$ emissions attributable to logistics by 1.0% by promoting modal shift and improving transport efficiency.<br>• Increase the volume of products transported for which modal shift is used—crucial to achieving the above 1.0% annual reduction—by 10.0%. |

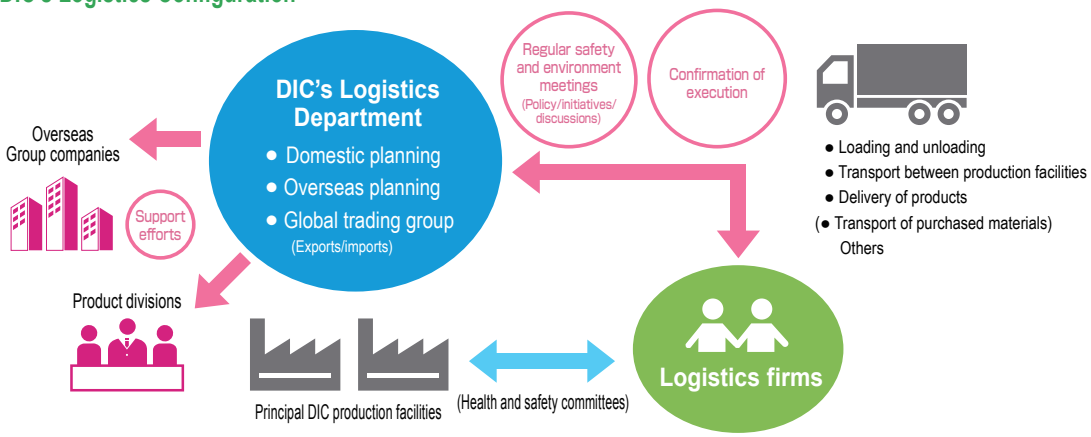
### Basic Policy and Framework for Promoting Initiatives

DIC's commitment to promoting Responsible Care encompasses initiatives aimed at reducing $CO_2$ emissions attributable to the transport of its products. The DIC Group's logistics configuration—components of which include transport between production facilities, the transport of products to customers and international logistics—previously centered on a dedicated subsidiary, established in 1999, that operated under the direct supervision of DIC. In a bid to rationalize and increase the efficiency of logistics, in 2011 DIC transferred ownership of the subsidiary to a partner firm and began to outsource its logistics. Since then, the Group has worked closely with this and other partner firms to improve the safety of and reduce $CO_2$ emissions attributable to logistics.

With the aim of better responding to social imperatives associated with the transport of chemicals over the medium to long term, in January 2016 DIC combined the logistics components of its various departments to create an independent Logistics Department. As a consignor, the new department, which comprises three sections—domestic planning, overseas planning and the global trading group—is charged with formulating logistics policies and promoting efforts to enhance efficiency, as well as with coordinating with logistics partners, that is, third-party logistics (3PL*) firms providing complete outsourced logistics services, to further enhance safety and reduce environmental impact.

* 3PLs are firms that provide partial or complete outsourced logistics services.

#### DIC's Logistics Configuration



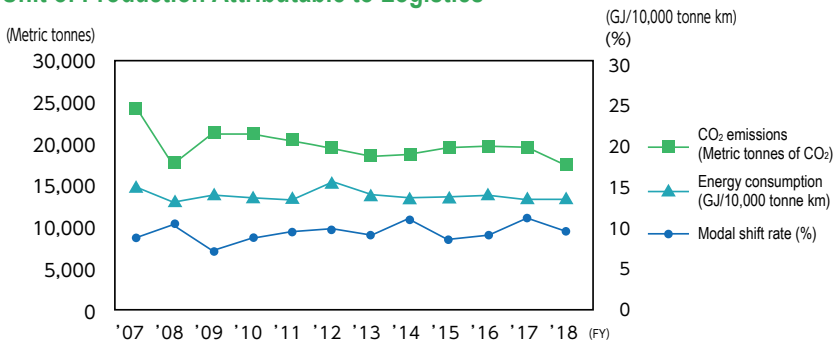
## Reducing Greenhouse Gases Attributable to Logistics

The volume of products transported by the DIC Group in Japan in fiscal year 2018 declined 8.8% and energy consumption and $CO_2$ emissions attributable to logistics decreased 10.0% and 10.6%, respectively. Energy consumption per unit of production attributable to the transport of products improved 1.0%. These results reflected a 19.0% decline in single consignment shipments and a 17.0% increase in consolidated shipments, which increased efficiency. With the use of maritime shipping from the Kansai area to Hokkaido and from the Kashima area to the Kansai area severely curtailed by torrential rains in southwestern Japan in July and multiple typhoons, the Group succeeded in maintaining a modal shift rate of 9.7%.

In Japan, a critical shortage of qualified drivers and the reduction of driver working hours as a result of government's efforts to encourage work style reforms have become key challenges for the logistics industry. To address these challenges, the Logistics Department works with the DIC Group's logistics partners to implement initiatives aimed at improving working conditions for drivers. In fiscal year 2018, these included verifying standby times—i.e., time waiting for cargo to be loaded—at production facilities, thereby reducing risks associated with overwork. In fiscal year 2019, the Group plans to improve transport efficiency by reviewing delivery conditions. In fiscal year 2017, the Group commenced shared logistics on a trial basis. While this did not yield significant benefits in fiscal year 2018, the Group will step up efforts to ensure solid results in fiscal year 2019.

In an effort to assist overseas DIC Group companies, in fiscal year 2017 a logistics manager was assigned to DIC Asia Pacific in Singapore, and began implementing initiatives aimed at rationalizing and increasing the efficiency of logistics in the Asia–Pacific region. In addition, a local "country leader" was appointed for each country/territory in the region with the goal of ensuring efforts to strengthen logistics frameworks that take into account local business customs. In fiscal year 2019, the Logistics Department, the DIC Asia Pacific logistics manager and country leaders will collaborate to bolster the efficiency of regional logistics, focusing particularly on India and Australia.

### $CO_2$ Emissions and Energy Consumption per Unit of Production Attributable to Logistics




DIC is working with logistics partners to increase the efficiency of loading.

## Safety Management in Logistics

The firms to which the DIC Group outsources logistics use containers that comply with the Fire Service Act and other transportation laws, as well as with related UN standards. The Group supplies information needed to display labels complying with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) as well as provides SDSs and other documentation to ensure safe shipping in Japan and overseas.

In Japan, the Logistics Department cooperates with its logistics partner firms, meeting regularly to discuss measures for improving the safety of both loading and transport work. Of particular note, logistics quality issues that cause trouble for customers—including leaks, undelivered cargo and delivery errors—are designated as incidents for priority attention. Targets, number of incidents, causes and countermeasures are confirmed at monthly meetings to ensure steady improvement. In fiscal year 2018, the incident rate was 46 ppm, essentially level with the previous period's rate (44 ppm). Members of plant health and safety committees attend each others' meetings to exchange information and promote on-site safety improvement initiatives.

The Logistics Department also inspects the offices of logistics partners located on-site at its 20 main domestic production facilities. In fiscal year 2018, inspections were conducted at nine of these offices, during which issues were pointed out and improvements confirmed. In addition, DIC endeavors to maintain and enhance safety by requiring transport personnel to carry Yellow Cards*.

* Yellow Cards are part of activities recommended by the JCIA. These cards contain information about the correct actions to take if an accident occurs. They provide contact details to ensure proper responses by transportation companies, firefighters and police officers if an accident occurs during the transport of chemical substances. Transport personnel must carry these cards at all times.

Regular meeting with logistics partners

Yellow Card carried by transport personnel

## TOPIC

### Training in the proper use of forklifts to move tote tanks and registration system for qualified forklift drivers introduced

In fiscal year 2017, an inappropriate fork angle or stopping speed during the transport of tote tanks using forklifts resulted in six accidents involving tanks dropping or toppling over at DIC Group sites in Japan. Against this backdrop, prompted by a proposal by logistics partner Hitachi Finenext Transport System Co., Ltd., in June 2018 DIC introduced a program to train employees in the proper use of forklifts for moving tote tanks at seven sites. Training involved recreating actual accidents that resulted in tote tanks being dropped from forklifts and damaged, enabling participants to experience problems firsthand and learn safe handling, including appropriate fork angles and stopping speeds. DIC also took advantage of the training program to adopt new nonslip forklift mats and to introduce a registration system for employees who have completed training with the aim of prohibiting unregistered—i.e., unqualified—individuals from using forklifts to move tote tanks. Between June and December 2018, training was provided 13 times, as a result of which the number of registered employees reached 363, underscoring increased awareness on the part of employees. As of December 31, 2018, no new accidents involving the dropping or toppling over of tote tanks had been reported since the launch of training.

Recreating an accident involving a tote tank dropping or toppling over during training

## VOICE We are taking various steps to ensure DIC remains a preferred shipper.

Recent years have seen major changes in Japan's logistics industry, with underlying factors including the aging of drivers, resulting in a shortage of experience and skill, and the government's efforts to encourage work style reforms. In this environment, ensuring safe and timely transport of cargo requires shippers to be both flexible and proactive. One way we have sought to meet this challenge is by investigating and improving driver standby times at production facilities. This reflects our belief that efforts such as this are crucial to helping prevent drivers from being overworked and improving safety, and to ensuring that we remain a preferred shipper. Similarly, we are also promoting modal shift and shared logistics with the aim of reducing greenhouse gas emissions attributable to the transport of our products.

We recognize the transformation of logistics practices as a key social imperative for shippers. Accordingly, we will continue to strengthen efforts to work with production facilities and logistics partners to identify and address new issues.

General Manager, Logistics Department **Kenichi Tsuruta**

# Ensuring the Safety of Chemical Substances

***The DIC Group continues working to provide appropriate information to stakeholders to ensure the appropriate handling of its products over the entire life cycles.***

## Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objectives of initiatives | Goals for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Respond to requirements relating to chemical product information. | • Enhance functions of the comprehensive system for managing information on chemical substances.<br>• Continue to expand deployment of the Wercs at overseas DIC Group companies. | • Information was customized to accommodate the needs of individual customers.<br>• The Wercs was deployed at a Group company in India. | ★★★<br>★★ | •Start creating a new global system that integrates the functions of the comprehensive system for managing information on chemical substances for domestic products and the SDS and label creation systems for export products.<br>•Deploy the Wercs at DIC Group companies in Greater China. |
| Comply with regulations in Japan and overseas (e.g., Japan's Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. and Poisonous and Deleterious Substances Control Act; the EU's REACH legislation and the U.S.' TSCA. | • Promote compliance with the revised Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.<br>• Promote compliance with the ROK's revised K-REACH.<br>• Complete registration of chemical substances to which the EU's REACH applies. | • Steps were taken to promote compliance with the revised Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.<br>• Preparations for compliance with the ROK's revised K-REACH proceeded steadily.<br>• Registration of chemical substances to which the EU's REACH applies was completed in June 2018. | ★★★<br>★★<br>★★★ | •Promote compliance with the revision of chemical substance volume reporting requirements in Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.<br>•Complete advance registration of chemical substances to which K-REACH applies.<br>•Promote compliance with Taiwan's Toxic and Chemical Substances of Concern Control Act (TCSCCA). |

## Basic Policies and Framework for Implementation

As a comprehensive global chemicals manufacturer, DIC approaches compliance with laws and regulations and the effective management of risks as essential to its survival. The Group works to maintain a solid grasp of laws and regulations in different countries and territories, and of trends relevant thereto, thereby ensuring its ability to design products that comply with regulations governing the use of chemical substances in products. The Group also strives to respond to requirements relating to the disclosure of information on chemical substances, thereby ensuring the safety of chemicals and products.

In 2002, participants in the World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa, agreed on a goal for the management of chemical substances to minimize the significant adverse effects thereof on human health and the environment by 2020. Since then, DIC has promoted efforts to eliminate substances of high concern specified in the Montreal Protocol on Substances that Deplete the Ozone Layer, the Stockholm Convention on Persistent Organic Pollutants and the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, as well as to develop alternatives to products containing substances scheduled to be newly included in such agreements, as well as to actively provide information on chemical substances, with the aim of reducing risks to society.

As an expert in the management of chemical substances, DIC plays an active role in considering issues pertaining to chemical safety and regulations and developing responses through its participation in industry associations.

## Managing Chemical Substances

### *Ensuring the Swift Provision of Reliable SDSs*

In 2003, the UN Economic Commission for Europe issued the first edition of the GHS, the idea being to reduce chemical risks through an internationally harmonized approach to classification of chemicals by type and toxicity, the clear display of information on labels for better understanding and the provision of SDSs.

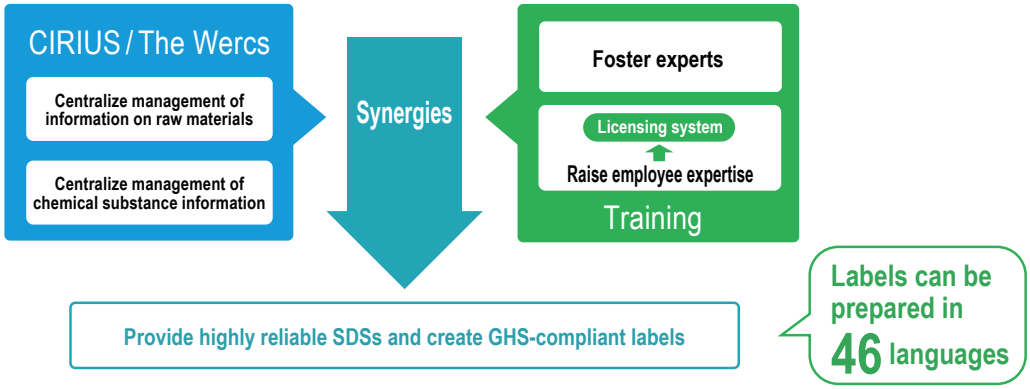
As a part of its efforts to ensure effective product stewardship, which is the foundation of Responsible Care, and emphasize the management of chemicals across its entire supply chain, DIC has sought to respond swiftly to this development, as well as to provide customers with crucial hazard-related information. As such, in 2009 DIC established CIRIUS (Chemical Substance Information Comprehensive Management System) for domestic products. In addition to complying with GHS, CIRIUS enables DIC to provide customers with complete information on hazards associated with chemical substances, thereby helping to reduce related risks. CIRIUS centralizes the management of information on raw materials and chemicals, as well as automatically checks various laws and regulations—including the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., the Industrial Health and Safety Act, and the Poisonous and Deleterious Substances Control Act—to facilitate the provision of reliable SDSs.

*Promoting the Global Deployment of the Wercs Label Creation System*

In 2013, DIC began using the Wercs (a global SDS and label creation system developed with know-how from DIC) for products for export. As a result, DIC now has a structure that enables it to compile SDSs that are compliant with the GHS for all exported products that comply with national and regional laws and regulations and is accessible in relevant local languages. In April 2014, DIC began using the Wercs to issue SDSs and labels for all exported products. In fiscal year 2015, DIC also began deploying the Wercs at overseas Group companies.

As specialized knowledge about chemical substance management is essential, DIC focuses on training in the manufacture, import and handling of chemicals in accordance with applicable laws and regulations and draws on its proprietary licensing system to enhance the skills of employees.

**Framework for Promoting the Safety of Chemical Substances and Products**




## Principal Initiatives in Fiscal Year 2018

*Improving the Performance of the DIC Group's Systems for Managing Chemical Substance Information and Exploring the Creation of a New Global System*

In fiscal year 2017, DIC rebuilt its comprehensive global chemical information systems and strengthened the system's alignment with its SAP system with the aim of facilitating prompt responses to rapidly changing national and regional regulations regarding chemical substances. In fiscal year 2018, DIC established working groups with the aim of providing purpose-specific information tailored to laws and regulations in individual countries and regions. Each working group works to further customize the systems with the aim of enhancing the quality of information services provided to customers and improving convenience, thereby bolstering operating efficiency.

Guided by its new medium-term management plan, DIC111, DIC is exploring the creation of a new global chemical information management system that integrates CIRIUS, its comprehensive domestic chemical information system, and the Wercs, an SDS and label creation system used for products exported overseas. The Company will establish a project team to oversee this effort in fiscal year 2019 and aims to build and begin using the new system in fiscal year 2024.

### VOICE We built a research tool that matches product safety data and the latest chemical substance regulatory information.

As a working group member, I am involved in efforts to modify the system to facilitate providing customers with swift and accurate information. In fiscal year 2018, we built a research tool that instantly matches the product safety data accumulated in CIRIUS with the latest chemical substance regulatory information, making it possible to provide prompt information that meets customer needs. At the same time, this has helped improve the efficiency of product development and chemical substance surveys that comply with chemical substance regulations.

Since DIC's product portfolio is diverse, there are various requests for system modifications from members of different working groups. Although it is difficult to devise specifications that ensure both convenience and compliance and provide versatility while at the same time meeting special requirements, I am thrilled that the work I do is of use to many people. Going forward, we will leverage the know-how we have accumulated through this effort to build a new system that appropriately reflects our status as a leading global manufacturer of fine chemicals.

Product Safety & Regulatory Group, Tokyo Plant **Chihiro Ishida**

### *Risk Management Across the Supply Chain*

In line with the DIC Group Universal Purchasing Policy, DIC formulated the DIC Group Green Procurement Guidelines, which prohibit the procurement of materials containing hazardous substances in seven categories. The guidelines mandate the submission of a DIC Raw Materials Survey, an SDS and a chemSHERPA*, as well as a DIC Group Green Procurement Guidelines Survey, when purchasing raw materials, thereby creating a system for eliminating substances of concern. Submission of a Conflict Minerals Survey is also required.

1. Substances the production of which is prohibited, as outlined in Article 55 of Japan's Industrial Health and Safety Act;
2. Substances designated as class 1 specified chemical substances in Japan's Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.;
3. Substances designated for monitoring under Japan's Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.;
4. Chemical substances the production of which is already prohibited, as detailed in Japan's Act on the Protection of the Ozone Layer Through the Control of Specified Substances and Other Measures (ozone-depleting substances listed in the Montreal Protocol);
5. Specified particulates denoted in Japan's Air Pollution Control Act;
6. Specified poisonous substances indicated in Japan's Poisonous and Deleterious Substances Control Act; and
7. Specified substances detailed in the Stockholm Convention on Persistent Organic Pollutants.

* chemSHERPA is a scheme designed to facilitate the accurate and efficient sharing of information on chemical substances in products across the entire supply chain. DIC began using chemSHERPA in late fiscal year 2017.

### *Position on the Use of Animals in Testing*

In line with the "3Rs" of animal use in research ("Replacement, Reduction, Refinement"), which are guidelines designed to ensure the more ethical use of animals in testing, the DIC Group actively promotes safe evaluation using quantitative structure–activity relationship (QSAR) models, which do not employ animals, and alternatives to animal testing.

## Reducing Risks through the Global Provision of Information

### *Information on Raw Materials and Chemical Substances in Imported Products in Japan*

In April 2013, DIC consolidated the management of information on the composition of chemical substances in exported products and on chemical substance legislation in various countries and regions, introducing the Wercs, a new system that automatically creates product SDSs in the language—and in compliance with the laws and regulations—of individual export destinations, creating a foundation for its global information system and helping reduce risks for customers.

DIC provides information on chemical substances using C RIUS in Japan and the Wercs overseas

For products manufactured in Japan, DIC uses CIRIUS to centralize the management of information on raw materials and chemical substances. To facilitate the provision of reliable SDSs, CIRIUS automatically checks Foreign Exchange and Foreign Trade Act–based secure trade control rules, as well as the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., the Chemical Substances Control Law, the Industrial Safety and Health Act and the Poisonous and Deleterious Substances Control Act.

The Wercs, which incorporates know-how accumulated by DIC in the creation and use of CIRIUS, was developed with the aim of expediting the provision of such information for products for export. The Wercs facilitates the translation of data into 46 different languages—including the languages of the 19 countries and territories to which DIC currently exports products—and the preparation of SDSs and labels in local languages that comply with laws and regulations in the Americas, Europe, Asia and elsewhere.

Since switching to the Wercs for creating SDSs and issuing labels for exported products, DIC has expanded the number of countries for which it can prepare local-language, legally compliant SDSs and labels to include the ROK, Europe, the United States, the PRC and Taiwan. Since April 2014, all SDSs and labels for products for export have been prepared using the Wercs. DIC is also promoting deployment of the system to Group companies in Japan, which are using the Wercs in tandem with CIRIUS to ensure the effective management of chemical substances across its domestic Group supply chain.

### *Expanding Deployment of the Wercs at Overseas Group Companies*

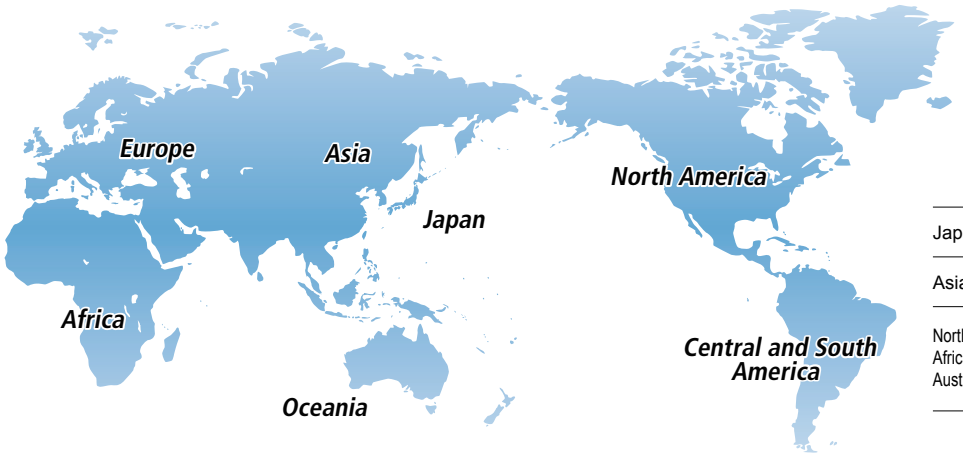
In fiscal year 2015, DIC began deploying the Wercs at Group companies overseas. In fiscal year 2018, the Wercs was introduced at an additional overseas company, bringing to 23 the number now using the system. With the aim of promptly updating its labels to comply with GHS hazard labeling standards in the event of revisions to laws and regulations or the identification of new hazards, in fiscal year 2016 the Company set up an on-demand label printing system that links the Wercs with its SAP system. In fiscal year 2019, the Company will continue to deploy this system at companies that have already introduced the Wercs. Through these and other efforts, DIC aims to prevent human error and increase business efficiency, as well as to facilitate globally consistent management based on a common system.

### Global Deployment of the Wercs

| | |
|---|---|
| Fiscal year 2013 | Japan (Four companies): DIC, DIC Graphics, DIC Kitanihon Polymer and Seiko PMC |
| Fiscal year 2014 | — |
| Fiscal year 2015 | Indonesia (Three companies)*<br>Malaysia (Two companies)*<br>Thailand (Two companies)*<br>PRC (Five companies)*<br>Taiwan (Two companies)*<br>Singapore (One company) |
| Fiscal year 2016 | Taiwan (One company)* |
| Fiscal year 2017 | Singapore (One company)<br>Philippines (One company)<br>Vietnam (One company)<br>Sri Lanka (One company)<br>Pakistan (One company) |
| Fiscal year 2018 | India (One company) |
| Fiscal year 2019 (Scheduled) | PRC (One company) |

* Deployment is complete.

### The DIC Group's Comprehensive Global Chemical Information Systems




| | |
|---|---|
| Japan (DIC Corporation) | **CIRIUS** |
| Asia–Pacific region | **The Wercs** |
| North and South America, Europe, Africa and Russia (Sun Chemical), Australia (DIC) | **ATRION** |

## Complying with Laws and Regulations

### *Ensuring Prompt Responses to Regulatory Changes Worldwide*

The principal goal governing the management of chemical substances worldwide is that implied in the agreement, reached at the WSSD in 2002, to ensure, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effect. Recent years have seen the European Union enact Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)* legislation, and the ROK, the PRC and Taiwan introduce legislation aimed at strengthening chemical substances risk management. As well, countries in Southeast Asia have deployed the GHS.

DIC collects the latest information on chemical substances in overseas markets through international consultants, Group companies and experts, news wire services and chemicals industry associations to ensure that it can respond swiftly and effectively to revisions in laws as well as play an important role in the ensuring legal and regulatory compliance as a member of industry organizations in Japan. In 2009, the Companies began using CIRIUS to manage chemical substance information for products manufactured in Japan. In fiscal year 2013, DIC switched to the Wercs for creating SDSs and issuing labels for existing exported products, accelerating its ability to provide information to customers.

In fiscal years 2016 and 2017, steps were taken across Asia to reinforce the management of chemical substances. Of particular note, the PRC announced a new assessment agency as part of its system for registering hazardous chemicals and the ROK dramatically revised K–REACH, while Thailand and Vietnam proceeded with preparations to introduce a new system for registering chemical substances.

* Under REACH, businesses bear full responsibility for evaluating the safety of chemical substances they produce and/or use, with no distinction made between "existing" and "new" substances. REACH also prohibits the use of specified chemical substances that pose unacceptable risks to human health.

## Principal Initiatives in Fiscal Year 2018

In April 2019, the revised Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. came into force. Based on a review of regulations on chemical substances with low production volumes in the early stages of development, the revision shifts the focus of regulations on production volume away from assessed hazards (hazard assessment) and toward risk when released into the environment (risk assessment).

In advance of this revision, DIC promoted steady efforts to ensure preparedness, including collecting and analyzing relevant information, as well as extending information to and conducting seminars for customers and Group companies. As a member of JCIA and the Japan Dyestuff and Industrial Chemicals Association (JDICA), DIC chairs a working group charged with formulating effective responses to the new system of exceptions for low production volume substances. Employees in charge play a leading role, working with government authorities to ensure that member companies are prepared and able to implement measures without delay.

### VOICE We participate in industry association activities and were involved in the revision of Japan's chemical substance law.

The Responsible Care Department plays an active role in the JCIA and on behalf of DIC, a core member, we were involved in the revision of the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. Throughout this process, we struggled to cope with differences of opinion arising from the diverse perspectives of pertinent ministries, including the Ministry of Economy, Trade and Industry (METI). The situation was similar within the JCIA, with the views of individuals diverging depending on the company they represent, so it took a lot of time and effort to get everyone on the same page regarding revisions.

Efforts to meet the WSSD goal for chemical substance management will conclude in 2020. Nonetheless, initiatives aimed achieving the SDGs will continue until 2030 and discussions have already begun with the aim of developing a vision for as far in the future as 2050. As a company that handles chemical substances, we pledge to never lose sight of the need to act in a responsible manner to ensure that the DIC Group can continue to play a central role in the JCIA in the years ahead.

Group Manager, Chemical Management Group, Responsible Care Department **Shinobu Yamaguchi**

## Groupwide Efforts to Create a Stronger Compliance Framework

To ensure an accurate grasp of legal and regulatory trends, DIC has worked steadily to strengthen communication with local group companies and in fiscal year 2016 reinforced its management framework by assigning dedicated full-time managers to regional headquarters for Greater China and the Asia–Pacific region.

In the United States, substantial revisions were made to the Toxic Substances Control Act (TSCA)* in fiscal year 2016, requiring a comprehensive inventory reset (review of existing chemical substances on the TSCA list). DIC and Sun Chemical completed compliance with the reporting requirements imposed by this reset in January 2018. DIC also completed registration of eight existing chemical substances to which the EU's REACH legislation applies for which the registration deadline was May 2018 and will continue working to expand the scope of chemical substances registered, as well as to increase the accuracy of documentation for registration. The Company will also continue to promote efforts to respond to substance evaluations by the European Chemicals Agency (ECHA) and ECHA member countries and to collect information on REACH substances of very high concern (SVHCs) and approved and restricted substances. In light of uncertainties surrounding the United Kingdom's EU exit, DIC began preparing to transfer its sole agency business from the UK company it currently subcontracts to an EU-based affiliate of the company.

Recognizing the importance of improving the skills of individuals responsible for addressing the increasing sophisticated needs of customers in every country and region, since fiscal year 2017 DIC has held the Chemical Regulatory Compliance Meeting, an annual gathering of these individuals from regional headquarters and Group companies in Greater China and the Asia–Pacific region, to facilitate the identification of issues and the sharing of information.

Chemical Regulatory Compliance Meeting (November 2018, corporate headquarters, Tokyo)

* The TSCA is a law administered by the U.S. Environmental Protection Agency (EPA) that regulates chemical substances produced in or imported into the United States.

## Principal Initiatives in Fiscal Year 2018

In January 2019, the ROK revised K-REACH. In advance of this development, DIC, as the leader of the JCIA working group established to respond to overseas legal and regulatory changes, exchanged views with the relevant authorities in the ROK, after which it gave a presentation to Group companies and extended related information to customers and suppliers.

In June 2018, DIC completed the registration of existing chemical substances under the EU's REACH legislation. The Company will continue to respond as necessary by registering new substances and re-registering existing substances (updating information) to ensure REACH compliance. In addition, the Company will capitalize on its global network to respond swiftly to changes in Southeast Asia, where the introduction of new regulations is proceeding at a rapid pace, maintaining a close eye on regional trends. Sun Chemical has developed its own comprehensive chemical substance information management system, ATRION, for the Americas, Europe, Africa and Australia that ensures its ability to comply with laws and regulations in these regions, as well as to produce SDSs and labels.

## VOICE I attended the 2018 Chemical Regulatory Compliance Meeting and related training, which were held in November.

Participants in the fiscal year 2018 Chemical Regulatory Compliance Meeting, which was held in Japan, from the Asia–Pacific region and Greater China gathered to discuss the process for implementation of the Wercs, as well as GHS-, SDS- and label-related issues faced by local companies. Up-to-date information on chemical substance information management and export product management at Group companies in Taiwan, the ROK, Vietnam and the United States and at DIC in Japan was also presented and discussed during the meeting.

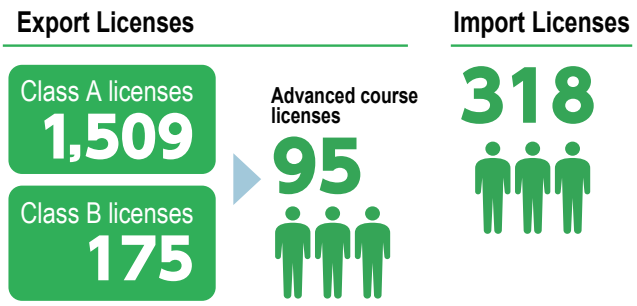
We also learned about how to access toxicity data, GHS classification and inventory status using the LOLI database, a search tool for information contained in the Wercs. This will help us to better explain SDS hazard pictograms and other information issued by the Wercs in response to requests from customers or ESH inspectors. In addition, the meeting introduced the Global Chemical Information Management Innovation Project, the objective of which is to harmonize raw materials information.

Regional Technical Manager, DIC Asia Pacific Pte Ltd **Seah Thiam Leng**

## Training in Chemical Substance Management

### *Specialized Training Under DIC's Licensing System*

As a comprehensive global chemicals manufacturer, DIC recognizes legal and regulatory compliance as central to risk management and endeavors to improve employees' awareness and knowledge of chemical substance regulations in Japan and overseas by holding workshops and maintaining a proprietary internal licensing system. Efforts include providing specialized training for individuals in Japan involved in exporting chemical substances in line with the Foreign Exchange and Foreign Trade Act and for individuals involved in importing chemical substances in line with the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., as well as issuing licenses, valid for two or three years, to employees who have passed in-house examinations. As of fiscal year 2018, 1,509 employees held a Class A license, which requires specialized knowledge, and 175 held a Class B license, which pertains to ancillary operations, while a further 95 individuals had completed an advanced course demanding superior capabilities that was introduced in fiscal year 2015. In addition, 318 individuals held import licenses.




### *Training in Use of the Wercs at Overseas Group Companies*

With the full-fledged deployment of the Wercs, in fiscal year 2017 legal and regulatory officers in Greater China and the Asia–Pacific region have provided training in the use of the system tailored to local laws and regulations. Training seminars go beyond explaining the system's operations and advantages to ensure participating employees understand the importance of legal and regulatory compliance. In response to a request from Group companies in these regions, in fiscal year 2018 regulatory officers visited Japan to receive advanced training from multiple domestic legal and regulatory officers. Visiting officers regularly use the Wercs to amass and manage legal and regulatory information, but the increasingly complex and sophisticated nature of their work has prompted many to request more advanced training in Japan. The DIC Group will continue to promote cooperation among corporate headquarters' and regional and overseas Group company legal and regulatory officers with the aim of further enhancing compliance.

## VOICE I will continue working to enhance knowledge and understanding by providing ongoing training.

As a legal and regulatory officer at Siam Chemical Industry in Thailand, I provide customer support and deal with government information requirements. Legal and regulatory officers are responsible for disseminating chemical substance information across the supply chain, which we do by making effective use of our hazardous substances management system. To this end, we have established a regulatory committee that meets monthly to deliberate legal and regulatory issues and provides SDSs that comply with the laws of different countries and territories. To improve the efficiency of this process, in 2014 Siam Chemical Industry introduced the Wercs.

With the aim of maximizing the capabilities of the Wercs, in 2018 I was dispatched to Japan for advanced training in the use of the system, as well as in the use of an export management system that complies with Thailand's new Trade Control on Weapons of Mass Destruction (TCWMD) Act, which will enter into force in 2020. I will capitalize on my newly acquired expertise to provide training for my colleagues at Siam Chemical Industry with the aim of enhancing knowledge and understanding.

Regulation Control, Siam Chemical Industry Co., Ltd. **Monticha Sudjai**

# Engaging with Society

*DIC actively discloses information and publicizes its Responsible Care initiatives and endeavors to disseminate knowledge regarding ESH-related issues and to respond appropriately to public concerns.*

## Information Disclosure and Engaging with Society

The DIC Group strives to increase the transparency of its activities through the active disclosure of information and at the same time promotes dialogue with stakeholders by, among others, providing safety- and environment-related data through Group websites, the DIC Report and other media, as well as by holding environmental presentations for local residents at production facilities.

The DIC Group also promotes a variety of efforts to deepen its engagement with society. In Japan, such efforts include preparing site reports, inviting junior and senior high school students in for hands-on lab lessons, participating in community disaster drills and providing assistance for local festivals and other local events. Overseas Group sites seek to advance dialogue and interaction with local communities by participating in tree plantings and other activities aimed at helping prevent global warming and preserve biodiversity.

Environmental presentation for the local community (Saitama Plant)


Site report (Saitama Plant)

Community event (*bon odori*) participation (Tokyo Plant)

# Quality

## Enhancing Product Quality and Customer Satisfaction

### Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objective of initiatives | Goals for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Secure product quality. | Reinforce the quality assurance framework by, among others, modifying the corporate culture and improving employee ethics, thereby making it possible to prevent quality issues from arising. | A new system was created to collate and analyze information received regarding quality issues (complaints and criticisms) and to share such information efficiently across the Group. This system was deployed with the aim of preventing the recurrence of such problems. | ★★ | Reinforce the quality assurance framework by, among others, modifying the corporate culture and improving employee ethics, thereby making it possible to prevent quality issues from arising. |
| | Ensure a level of quality that fulfills the DIC Group's corporate social responsibility. Collect and organize information on raw materials pertinent to safety, compliance with laws and regulations, and environmental protection and provide appropriate product information. | Efforts to provide appropriate product information proceeded apace, including through the use of CIRIUS to manage information on raw materials and provide appropriate product information. | ★★ | Ensure a level of quality that fulfills the DIC Group's corporate social responsibility. Collect and organize information on raw materials pertinent to safety, compliance with laws and regulations, and environmental protection and provide appropriate product information. |

### Basic Approach

Along with its Environment, Safety and Health Policy, the DIC Group views the improvement of product quality as a theme that is essential to upholding a sound operating foundation. Accordingly, the Group seeks to ensure every employee shares the sentiment conveyed in its Quality Policy and works continuously to enhance quality and ensure customer satisfaction.

**DIC's Quality Policy** "Contribute to the prosperity of customers and society by consistently providing reliable products" (Updated in May 2015)

### Framework for Implementation

To better leverage its agility and comprehensive capabilities, DIC has established a matrix-like quality management configuration that positions product divisions on the vertical axis and the Technical Management Unit and Production Management Unit on the horizontal axis. In fiscal year 2015, DIC revamped its quality assurance configuration with the aim of building a stronger consensus between top management and employees on the front lines, establishing the Quality Assurance Department and product division quality assurance groups. This framework enables swift and effective responses to quality issues.

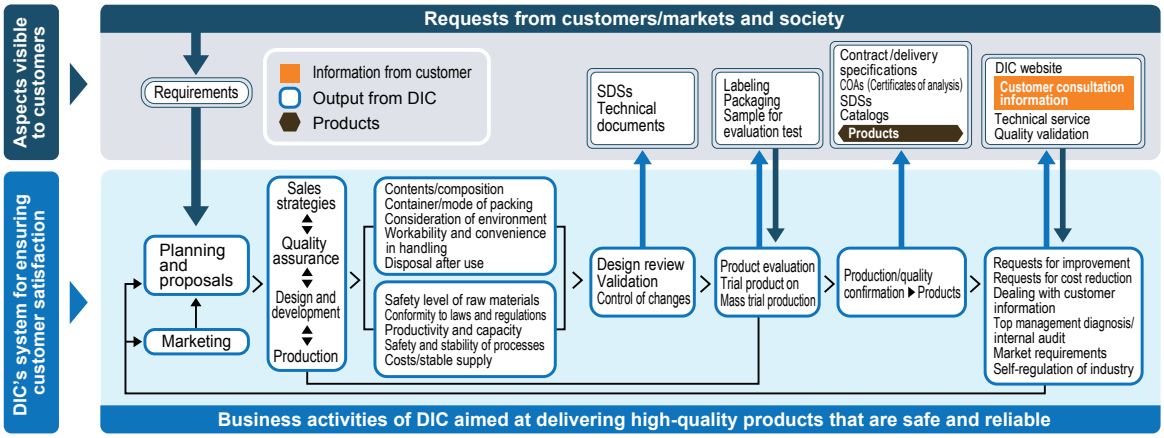
The Quality Assurance Department is responsible for product quality across the entire DIC Group, while product division quality assurance groups oversee product-specific quality management. In addition to facilitating prompt and appropriate quality management, this division of Groupwide and product-specific quality management encourages close communication among departments.

The Quality Assurance Department implements regular product quality audits of DIC Group companies in Japan to ensure that quality management is functioning effectively, as well as to lift product quality levels. Overseas, DIC Group companies work with the Quality Assurance Department and the product division quality assurance groups to promote a variety of efforts aimed at achieving further improvements. In fiscal year 2018, product quality audits were conducted at six overseas Group companies.

In fiscal year 2019, the Quality Assurance Department and the product division quality assurance groups began taking steps toward the creation of a new quality assurance system, including promoting the automation and mechanization of testing and inspection procedures.

## 1 Initiatives Aimed at Increasing Customer Satisfaction

To ensure its ability to provide high-quality products that customers feel secure using, DIC promotes a variety of quality improvement initiatives during product planning, design and development, the procurement of raw materials, production and sales, giving consideration to the need for effective product stewardship. Relevant product division quality assurance groups participate in design reviews from the initial stages of development, conducting rigorous evaluations at each stage, with the goal of providing the products and services that customers and markets seek. After products are sold, customer and market assessments are gathered and fed back to development departments to facilitate further quality improvements. In fiscal year 2018, DIC conducted quality audits of four raw materials suppliers.




### Ensuring a Level of Quality that Fulfills the DIC Group's Corporate Social Responsibility

To provide safety data sheets (SDSs) based on appropriate, up-to-date product information, the Quality Assurance Department collaborates with technical and purchasing departments to collect and organize information on raw materials pertinent to safety, compliance with laws and regulations, and environmental protection. DIC has established CIRIUS (Chemical Substance Information Comprehensive Management System) to maintain such information, which it reflects in its SDSs.

## 2 Efforts to Enhance Product Quality–Related Educational Initiatives

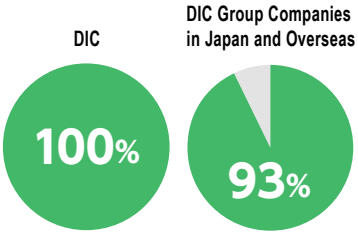
Committed to providing safe, secure products that satisfy its customers, DIC recognizes the importance of ensuring that employees maintain a high awareness of quality, as well as a constant commitment to achieving further quality improvements and upholding high quality standards. To this end, the Company provides education regarding product quality to all DIC Group employees at specific times, including through training for newly hired and newly promoted employees.

Since fiscal year 2016, DIC has also offered training led by external experts in the field for employees involved in quality management. Approximately 40 individuals participate in such training annually, for a total of 120 to date. Since fiscal year 2017, the Company has held meetings for employees responsible for quality assurance on the front lines to revitalize the efforts of employees and departments by facilitating the exchange of information and opinions. Going forward, DIC will continue working to establish and promote further awareness of product quality as essential to upholding a sound operating foundation.

## 3 Global Product Quality Initiatives

DIC Group companies with production capabilities in Japan, Greater China and the Asia–Pacific region are working to earn certification under ISO 9001, the International Organization for Standardization's benchmark for quality management systems, with 93.0% having achieved this goal as of the end of fiscal year 2018, based on which they are working to establishing product quality assurance frameworks. In the years ahead, DIC will advance efforts to further reinforce quality frameworks to better suit product divisions and Group companies.

**Percentage of DIC Group Companies with Production Capabilities Certified Under ISO 9001**

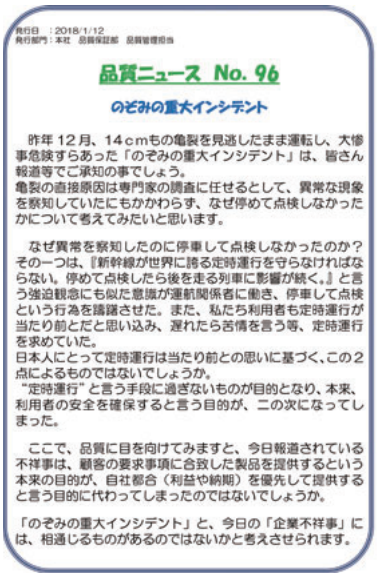


## 4 Preventing the Recurrence of Quality Problems

The DIC Group has created a system to ensure that information received regarding quality problems (complaints and criticisms) is collated, analyzed and shared efficiently across the Group, thereby preventing the recurrence of such problems.

To discover the causes of quality problems, the Group employs "why-why analysis" ("*naze-naze bunseki*"). Using why-why analysis in an effort to eliminate product rejects at the production stage, in fiscal year 2016 the Hokuriku Plant achieved an 80% reduction from the fiscal 2010 level. DIC also applies why-why analysis in determining the cause of accidents, an approach that continues to yield solid results.

Through meetings held to facilitate the exchange of information and opinions among individuals responsible for quality assurance on the front lines, the Group also continues to promote bottom-up quality improvement initiatives that reflect front-line perspectives. DIC also publishes *Quality News*, which provides useful information on quality management and ways to enhance work quality. In addition to being published regularly on DIC's portal site and distributed directly to relevant parties, *Quality News* is used in employee training. In accordance with the Group's risk management policy, the DIC Group has established procedures for responding to serious quality-related issues, enabling it to respond effectively in emergency situations.



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**品質ニュース No. 96**

**のぞみの重大インシデント**

昨年12月、14cmもの亀裂を見逃したまま運転し、大惨事危険すらあった「のぞみの重大インシデント」は、皆さん報道等でご承知の事でしょう。
亀裂の直接原因は専門家の調査に任せるとして、異常な現象を察知していたにもかかわらず、なぜ停めて点検しなかったかについて考えてみたいと思います。

なぜ異常を察知したのに停車して点検しなかったのか？その一つは、『新幹線が世界に誇る定時運行を守らなければならない。停めて点検したら後を走る列車に影響が続く。』と言う強迫観念にも似た意識が運航関係者に働き、停車して点検という行為を躊躇させた。また、私たち利用者も定時運行が当たり前とだと思い込み、遅れたら苦情を言う等、定時運行を求めていた。
日本人にとって定時運行は当たり前との思いに基づく、この2点によるものではないでしょうか。
"定時運行"と言う手段に過ぎないものが目的となり、本来、利用者の安全を確保すると言う目的が、この次になってしまった。

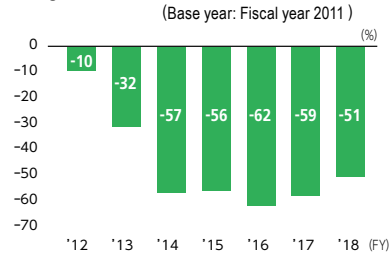
ここで、品質に目を向けてみますと、今日報道されている不祥事は、顧客の要求事項に合致した製品を提供するという本来の目的が、自社都合（利益や納期）を優先して提供すると言う目的に代わってしまったのではないでしょうか。

「のぞみの重大インシデント」と、今日の「企業不祥事」には、相通じるものがあるのではないかと考えさせられます。

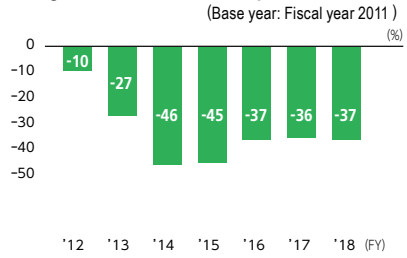
Why-why analysis (*naze-naze bunseki*)

### Change in the Number of Quality Problems

**Change in the Number of Product Returns**




**Change in the Number of Complaints Received**




## VOICE Quality doesn't lie. Responsibility for quality lies with everyone involved in production.

The Performance Material Products Division offers high-performance synthetic resins to customers in a wide range of industries, including paints, electronics materials, aerospace composites, automobiles, optics, construction and civil engineering. The key factor underpinning the business foundation of these diverse products is quality. It is crucial that all employees in departments involved in production processes recognize that responsibility for quality lies with them. Quality assurance groups are responsible for keeping the promises we have made to customers in product delivery specifications and delivering products that can be used safely and continuously.

Quality doesn't lie. We continue to promote consistent quality assurance initiatives at DIC Group production sites in Japan and overseas with the aim of guaranteeing a level of quality that enables us to maintain and improve customer trust.

General Manager, Performance Materials Quality Assurance Group, Performance Material Products Division, DIC Corporation **Miyuki Kawasaki**

# Human Resources Management

## Working to Enhance Job Satisfaction

SDGs Goals 3, 4, 5, 8 and 10


### Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objectives of initiatives | Goals for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Foster and endorse the advancement of local staff overseas with the aim of advancing global management. | • Formulate a human rights policy.<br>• Use human rights training to encourage awareness of the policy.<br>• Implement voluntary human rights inspections at Group companies in Japan and overseas. | • A human rights policy was formulated and announced.<br>• Human rights inquiries were conducted and steps were taken to promote awareness at DIC Group companies worldwide.<br>• Sun Chemical continued to participate in the Responsible Mica Initiative. | ★★ | • Reinforce awareness of the human rights policy.<br>• Use ESG human rights training to encourage awareness of the policy among executives and other pertinent individuals.<br>• Provide tailored guidance based on the results of voluntary human rights inspections. |
| | Consider the creation of a global personnel system that includes evaluation with the goal of ensuring rational and efficient human resources management. | • A new Human Resources Strategy Department was established.<br>• A trial of a new process for selecting the next generation of management was launched. | ★★★ | Announce and begin implementing WING, a new strategy designed to rally diverse human resources as the source of DIC's competitiveness as a global organization. |
| | • Continue offering the GCD Program.<br>• Continue providing practical training aimed at fostering global human resources. | • The Group continued to offer the GCD program.<br>• The Group continued to provide practical training aimed at fostering global human resources. | ★★★ | • Continue offering the GCD Program.<br>• Continue providing global human resources training aimed at fostering employees at multiple levels. |
| Encourage women in the workplace with the aim of securing a diverse labor force and supporting diverse working styles. | Continue to advance efforts to, among others, change mindsets, create a framework and actively encourage the hiring of female job candidates. | • A program to foster female leaders was implemented.<br>• A panel discussion was held with women in management positions at other companies as panelists.<br>• Telecommuting arrangements were introduced in January 2018.<br>• DIC earned selection as a Nadeshiko Brand. | ★★★ | • Continue to implement the program to foster female leaders.<br>• Use roundtable discussions to manage the progress of efforts to promote career opportunities for female employees.<br>• Introduce leave for employees to accompany spouses overseas. |
| Promote the hiring of individuals with disabilities with the aim of securing a diverse labor force and supporting diverse working styles. | Increase the number of employees with disabilities to 2.2% of DIC's total labor force. | As of December 31, 2018, individuals with disabilities accounted for 2.41% of DIC's total labor force. | ★★★ | Work with the Japanese government's Hello Work public employment security offices, as well as special needs schools and other organizations to promote the hiring of individuals with disabilities, to maintain the employment rate for individuals with disabilities at 2.4% of DIC's total labor force. |

### Basic Approach to Human Resources Management

With the aim of being an organization that empowers all employees to reach their full potential, the DIC Group is committed to respecting human rights and eliminating all forms of discrimination and to creating a work environment that embraces diversity. The Group also strives to support a healthy work–life balance for each employee and create a work environment conducive to job satisfaction, as well as to foster local human resources in markets around the world, which it recognizes as essential to ensuring sustainable corporate growth under its current medium-term management plan.

## A New Strategy for a Stronger Management Infrastructure

In line with The DIC WAY, which represents its fundamental management policy, the DIC Group has established a global human resources management framework under which Group companies in Japan, the PRC and the Asia–Pacific region are overseen by DIC, while those in North America, Europe, Central and South America, and Africa are overseen by Sun Chemical of the United States. The Company's DIC111 medium-term management plan, which was introduced in February 2019, sets forth a new strategy, dubbed WING, that is designed to rally the Company's diverse human resources as the source of its competitiveness as a global organization. WING centers on four core themes, summarized as "work style reform," "HR infrastructure reform," "next management selection" and "global talent development."

## WING: DIC111 Strategies for Human Resources Management

### Work Style Reform

**Reform work styles to capitalize on diversified individuality**

- Reform jobs with digital tools.
- Reform working conditions by introducing a telecommuting system and flexible working hours.
- Shift focus of evaluation from quantity to quality.
- Support employees who have childcare or nursing care responsibilities or suffer illness, etc.

### HR Infrastructure Reform

**Adopt a global human resources system and unify Group system**

- Consolidate employee qualification systems globally.
- Unify qualification standards and assessment formats for management-level employees.
- Develop IT system for global human resources platform.

### Next Management Selection

**Establish system to appoint the next management team**

- Clarify requirements for employees in key positions.
- Establish selection and monitoring processes for high-potential employees.
- Use talent review to optimize combination of positions and employees.

### Global Talent Development

**Develop global human resources**

- Define level of and set requirements for global human resources.
- Systematize global human resources development programs (English-language ability, competency, work experience, etc.)

## Basic Personnel Statistics (DIC)

| | | Fiscal year 2016 | Fiscal year 2017 | Fiscal year 2018 |
|---|---|---|---|---|
| Number of employees | Male | 2,653 | 2,618 | 2,628 |
| | Female | 660 | 655 | 660 |
| | Total | 3,313 | 3,273 | 3,290 |
| Average age | Male | 41.9 | 42.2 | 42.5 |
| | Female | 40.6 | 41.3 | 41.9 |
| | Total | 41.6 | 42.0 | 42.4 |
| Average years of employment | Male | 17.8 | 18.2 | 18.4 |
| | Female | 18.5 | 19.2 | 19.7 |
| | Total | 18.2 | 18.4 | 18.6 |
| New graduates hired | Male | 38 | 39 | 43 |
| | Female | 14 | 11 | 19 |
| | Total | 52 | 50 | 62 |

| | | Fiscal year 2016 | Fiscal year 2017 | Fiscal year 2018 |
|---|---|---|---|---|
| Retention rate (after three years) | Male | (Fiscal year 2013 hires) 91.3% | (Fiscal year 2014 hires) 79.2% | (Fiscal year 2015 hires) 87.8% |
| | Female | 91.7% | 100% | 81.0% |
| | Total | 91.4% | 83.5% | 86.3% |
| Separations (voluntary) (number of individuals) | Male | 32 | 35 | 55 |
| | Female | 8 | 11 | 15 |
| | Total | 40 | 46 | 70 |
| Separation rate (voluntary) | Male | 0.3% | 1.3% | 2.1% |
| | Female | 0.2% | 1.7% | 2.3% |
| | Total | 0.3% | 1.4% | 2.1% |

## Respect for Human Rights

The DIC Group actively supports global codes governing human rights*1, in line with which it is currently formulating the DIC Group Human Rights Policy, and promotes related initiatives. The DIC Group Code of Business Conduct, which outlines standards that DIC Group employees are expected to observe, lays down provisions prohibiting human rights violations and requiring respect for diversity, two philosophies that are the foundation of the Group's corporate activities. DIC Group employees are obliged to understand and provide written pledges to abide by the Code. Domestic and overseas Group companies implement voluntary human rights and labor practices inspections as part of ongoing efforts to prevent issues from arising, assess the results of these inspections and confirm the absence of violations.

In fiscal year 2010, DIC became a signatory to the United Nations Global Compact (UNGC), pledging its support for the Ten Principles of the UNGC, which include tenets regarding human rights and labor. The Company continues to implement related initiatives in all areas of its corporate activities to reinforce respect for human rights in the human resources management practices of all Group companies and prevent the occurrence of violations.

In response to the Modern Slavery Act 2015*2, DIC is reinforcing training regarding human rights due diligence*3, cognizant of the issue of human trafficking and the risks it poses to companies with operations in the United Kingdom. The Company also promotes awareness among DIC Group company executives and enhances corporate headquarters' inspection and monitoring structure as part of an ongoing effort to bolster Group management capabilities.

*1 The International Bill of Human Rights, comprising the Universal Declaration of Human Rights and the International Covenants on Human Rights (the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights); the International Labour Organization (ILO)'s Declaration on Fundamental Principles and Rights at Work; the United Nations' Guiding Principles on Business and Human Rights; and the Ten Principles of the UNGC.
*2 Under the Modern Slavery Act 2015, an Act of the Parliament of the United Kingdom, companies with operations in the United Kingdom must report on the existence/nonexistence of slavery, human trafficking or other critical violations of human rights in their supply chains, related risks and steps they are taking to address such practices. "Modern slavery" encompasses debt bondage, forced labor and servitude; human trafficking; and exploitation (including sexual exploitation and forced organ donation).
*3 Human rights due diligence is an ongoing risk management process that a company needs to follow in order to identify, prevent, mitigate and account for how it addresses its adverse human rights impacts.

## Initiatives in Fiscal Year 2018

A total of 58 DIC Group companies in Japan and overseas implement voluntary human rights and labor practices inspections. In fiscal year 2018, DIC refined the scope of questionnaires distributed to companies for this purpose and began promoting efforts to increase the visibility of related issues at individual companies, providing direction and/or training at corporate headquarters where necessary. Having completed verification of the results of inspections at companies in Japan, in fiscal year 2019 DIC will gradually expand efforts to ascertain status, promote awareness and provide training at Group companies in key overseas markets.

## The DIC Group Human Rights Policy

As a member of society that recognizes the importance of respect for human rights and respects the basic human rights of all stakeholders, including its customers, suppliers and employees, the DIC Group is currently formulating a human rights policy, a draft of which is provided below. Based on this policy, DIC will work to increase the human rights awareness of its executives and employees and to conduct its business activities in a manner that shows respect for human rights.

### 1. Positioning

This policy, which is in accordance with global human rights codes, articulates DIC's fundamental stance on respect for human rights.

### 2. Scope of application

This policy applies to all executives and employees of the DIC Group. The Company shall also encourage its business partners and suppliers to adhere to this policy and cooperate with them to advance respect for human rights.

### 3. Responsibility to respect human rights

The Company shall strive to fulfill its responsibility to respect human rights by ensuring that its business activities do not result in violations of the human rights of stakeholders, as well as by preventing human rights abuses in the course of its business. In the event that its business partners or suppliers cause adverse human rights impacts through their businesses, products and services, the Company—while not directly complicit—shall use its influence to encourage the responsible parties to cease the practices responsible for such impacts.

### 4. Human rights due diligence

To fulfill its responsibility in regard to respect for human rights, the Company has created a human rights due diligence system, which it shall employ on an ongoing basis to identify and address human rights risks.

### 5. Corrective/remedial actions

Should the Company cause adverse human rights impacts or should it become evident that it has been complicit in causing such impacts, the Company shall take appropriate corrective/remedial actions in response.

### 6. Compliance with applicable laws

The Company shall comply with applicable laws in the countries and territories in which it operates. The Company shall also respect international human rights principles and work actively to promote these principles.

### 7. Disclosure and education/training

The Company shall periodically report publicly on the progress of initiatives implemented in line with this policy. To ensure the effectiveness of this policy, the Company shall also provide appropriate training to its executives and employees.

### 8. Dialogue and discussion

The Company shall engage with stakeholders regarding initiatives implemented in line with this policy by creating opportunities for dialogue and promoting discussion in good faith.

### 9. Identifying principal human rights challenges

The Company has separately identified principal human rights challenges. In line with this policy, the Company shall use due diligence as appropriate. Recognizing this as an ongoing process, the Company shall also continue to revise and amend these challenges to reflect social change, business trends and other factors.

**DIC** Corporation

## Principal Human Rights Challenges Facing the DIC Group

Based on key global standards regarding human rights, the DIC Group has identified the following as the principal human rights challenges it faces and promotes appropriate due diligence in accordance with its draft human rights policy. The Group will review these challenges on a regular basis, taking into consideration factors such as social change and business trends.

### (1) Eliminate discrimination

The DIC Group prohibits all types of discrimination, harassment and other practices that undermine the dignity of any individual.

### (2) Prevent child labor and forced labor

The DIC Group prohibits the use of child labor, forced labor, slave labor and labor resulting from any form of human trafficking.

### (3) Respect basic labor rights

The DIC Group respects basic labor rights, including freedom of association and employees' rights to organize and to engage in collective bargaining.

### (4) Address the issue of conflict minerals

The DIC Group prohibits the use of conflict minerals. Should any raw materials purchased from third-party suppliers be found to contain conflict minerals, the Group will respond by, among others, immediately terminating the procurement thereof.

## The DIC Group's Human Rights Due Diligence System

The DIC Group has created a human rights due diligence system, which it employs on an ongoing basis.

| 1) Commit | 2) Identify and evaluate impacts | 3) Implement corrective/remedial measures, provide training and gauge effectiveness | 4) Disclose information |
|---|---|---|---|
| **Demonstrate the Group's human rights policy and views.** | **Identify and evaluate human rights risks in the Group's business and across its supply chain.** | **Implement measures and gauge effectiveness.** | **Report periodically on human rights initiatives.** |
| • Formulate a human rights policy.<br>• Introduce section on human rights into the DIC Group CSR Procurement Guidelines.<br>• Reinforce awareness of the policy. | • Encourage voluntary human rights inspections at Group companies.<br>• Identify and evaluate the impact of human rights risks. | • Implement corrective/remedial measures.<br>• Plan and provide human rights training.<br>• Gauge the effectiveness of measures. | • Provide information via the DIC global website.<br>• Include information in the DIC Report.<br>• Publicize using conventional mass media. |

## Due Diligence Initiatives to Address Principal Human Rights Challenges

### 1. Promotion of supply chain due diligence by the Purchasing Department

To ensure that its extended supply chain functions in a socially responsible manner, the Company established the DIC Group Universal Purchasing Policy in 2008, based on which it also formulated purchasing management regulations, and the DIC Group CSR Procurement Guidelines, which clarify issues it expects suppliers to address, in 2009. Using the policy and guidelines, the Company promotes CSR procurement by ensuring that all suppliers implement improvements and initiatives necessary to ensure sustainable procurement, as well as advances respect for human rights and takes comprehensive steps to address human rights risks such as conflict minerals, across its supply chain.

### 2. Initiatives to help realize a sound, viable mica mining industry in India

Mica has a broad range of industrial applications, including coatings, cosmetics, electronics materials and cutting fluids and is mined around the world. The use of child labor in the mining of mica in India, a leading producer, has been identified as a critical issue for users.

DIC Group company Sun Chemical, which oversees the Group's printing inks, resins and pigments for cosmetics operations in the Americas and Europe, faces inquiries from coatings industry organizations regarding the source of the mica used in its products. Sun Chemical has conducted inquiries at its suppliers and ascertained that it has no dealings with suppliers that use child labor. The company has also communicated its human rights policy—which states that should any supplier be discovered to use child labor, the company will immediately terminate its relationship with that supplier—to these organizations.

Sun Chemical is also a founding member of the Responsible Mica Initiative, a unique global collaboration established in February 2017 to eradicate child labor in the mica mines of India. Through participation in this initiative, materials producers and cosmetics companies around the world are working to contribute to the realization of a sound, viable mica mining industry.

### 3. Establishment of whistle-blowing hotlines and corrective measures by the compliance team

The Company's compliance team has created a channel for Group employees to report to whistle-blowing hotlines. In fiscal year 2017, the Company received 19 human rights–related reports through this system. However, internal investigations revealed no serious violations. Appropriate corrective measures were implemented in the receipt of reports.

### 4. Contact procedures and responses to comments and complaints

The Company has established procedures for suppliers, customers, local communities and other stakeholders to report issues by telephone or through its corporate website and strives to respond swiftly when comments or complaints are received. No complaints pertaining to human rights issues were received in fiscal year 2018.

## Building Trust with the DIC Employees' Union

DIC's management and representatives of its employees' union meet regularly with the goal of ensuring healthy industrial relations based on mutual trust. In addition, through labor–management councils and casual management conferences, DIC shares management information and its vision for the future with union representatives and encourages the frank exchange of opinions. A total of 67.2% of parent company employees belong to the DIC Employees' Union. (100% of non-managerial employees are union members.)

## Diversity Promotion and Work Style Reform

The DIC Group actively pursues diversity by employing a broad spectrum of individuals without regard to such considerations as gender, nationality, physical limitation or age. The Group works to foster a corporate culture that draws on its understanding and respect for diversity to produce creative ideas and to incorporate the concept of diversity into management, thereby creating workplaces that enhance job satisfaction for employees. The Group's president and CEO has said, "It is important to recognize that marshaling the diversity of the individuals that make up our labor force will enable us to respond to social imperatives or even to change DIC itself." To this end, DIC has identified introducing alternative working arrangements that leverage digital tools, including telecommuting and flextime; shifting the focus of evaluations from quantity to quality; and providing support for employees who have childcare or nursing care responsibilities or suffer illness as the key themes of the human rights strategy set forth in its DIC111 medium-term management plan. DIC is also promoting ESG management to strengthen its management infrastructure, with initiatives in Japan emphasizing increasing the percentage of the Company's management positions occupied by female employees, the percentage of its overall labor force accounted for by foreign nationals, and the number of female employees and foreign nationals on its management team.

Strength through Diversity

**Targets: Rate of female employees in management positions in Japan: 5.1% (FY2019) ⇒ 8.0% (2021) ⇒ 20.0% (2025)**
**Rate of foreign employees in Japan: 1.0% (2019) ⇒ 5.0% (2021) ⇒ 10.0% (2025)**

**Percentage of executives who are female and/or foreign nationals: 15.0% (FY2018) ⇒ 20.0% (FY2021) ⇒ 30.0% (FY2025)**

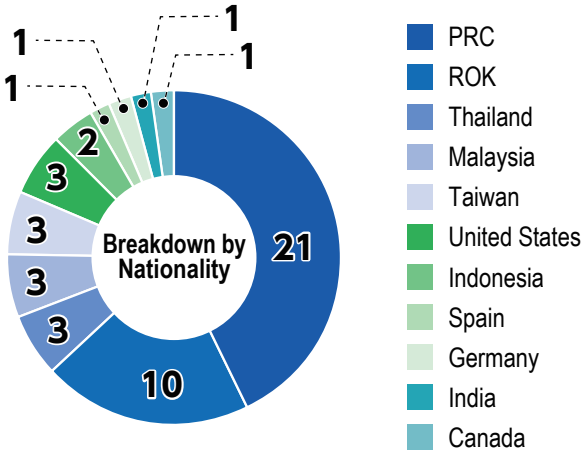
### 1 Hiring Diverse Human Resources

With the objective of securing talented individuals with advanced specialized capabilities, global perspectives and language capabilities, DIC actively promotes the hiring of international students completing undergraduate or graduate studies at Japanese universities; Japanese and foreign nationals completing undergraduate or graduate studies at overseas universities; and experienced mid-career candidates with extensive experience and expertise. At present, approximately 50 foreign nationals are employed in various capacities at DIC.

**Number of Foreign Nationals Currently Employed by DIC**

| Sales positions | Technical positions | Department/ division administration | Posted overseas | Production | Total |
|---|---|---|---|---|---|
| 3 | 30 | 10 | 5 | 1 | 49 |

**Nationalities of Foreign Employees**




### VOICE DIC's flexible work environment enables employees to accommodate work plans.

As a new graduate, I wanted to find a job with a company that would help me grow as a citizen of the world. As an organization with bases around the world, DIC was the ideal choice. The group I was assigned to is tasked with developing PPS compounds, which are key engineering plastics used widely in automotive components. Because DIC produces PPS compounds at five sites worldwide, including in Japan, we interact frequently with colleagues and customers from overseas. Several members of our team have experience working in other countries, which makes for a lot of unique personalities. DIC has introduced a variety of working arrangements, including flextime and working at home. This creates a work environment that enables employees to, for example, adjust work hours to accommodate work plans, or use earphones at their desk when they need to concentrate, making it much more flexible than most Japanese companies. It is encouraging to see the idea of not being constrained by preconceived notions—something those of us in technical positions often hear—is gradually finding its way into efforts to reform work styles at my own workplace.

Polymer Processing Technical Group 2, DIC Corporation **Sia-Er Tan**

## 2 Expanding Career Opportunities for Women

In line with its commitment to promoting diversity, DIC implements a variety of initiatives to expand career opportunities for female employees. Having established a full-scale program to support employees in balancing the demands of a career and childcare in 2007, since fiscal year 2016 the Company has pushed ahead with measures to transform employee mindsets and its corporate culture, as well as to provide training designed to encourage the drive and determination of female employees and broaden the range of jobs open to women.

### *Creating a Framework for Initiatives*

In fiscal year 2017, DIC established the position of diversity officer in each of its business units to create a framework for initiatives in each business unit that reflects the actual situation on the ground. The individual in charge of diversity for the Group and the business unit diversity officers meet periodically to exchange information, among others, with the aim of raising the standard of initiatives implemented Companywide.

### *Transforming Employee Mindsets and the DIC Corporate Culture*

In October 2016, DIC held the Women in DIC Forum, which addressed the issue of career opportunities for female employees and welcomed female executives from multiple DIC Group companies, at its corporate headquarters in Tokyo. Approximately 800 employees—split evenly between female employees and male management-level employees—participated in the forum. In the first session, four female executives from overseas Group companies gave presentations, while in the second session three female employees in senior positions in Japan joined the four speakers in a panel discussion on pursing a rewarding career as a way to enrich one's life. The discussion was broadcast to 14 Group sites across Japan.

As part of its efforts to change the mindsets of management-level employees, in May 2017 DIC held a conference for approximately 300 line supervisors on the meaning of diversity. The following month, the Company held a roundtable discussion that included an outside director who is board chair of an NPO and as such is well versed in diversity management.

In May 2018, DIC staged a diversity-related event for executives and managers overseeing female employees at its corporate headquarters in Tokyo. The event, which was attended by approximately 300 individuals from 16 sites across Japan, was divided into two parts. The first was a lecture titled "Diversity Is a Strategy," which was given by Yosuke Yagi, CEO of People First, Ltd., whose career includes stints as a human resources manager for General Electric Japan Ltd. and executive officer and executive vice president of LIXIL Group Corporation. Mr. Yagi's lecture touched on a variety of points, including tips for bringing out the best from people and organizations that he actually put into practice at LIXIL and about unconscious biases that impede the careers of female employees. The second part of the event was a discussion between Mr. Yagi and DIC president and CEO Kaoru Ino titled "Diversity at DIC: The Next Challenge," which was moderated by Yukio Ishizuka of Nikkei Inc. In addition to an exchange of views on the results of DIC's diversity awareness survey, the participants looked at the direction of efforts to promote diversity at DIC by examining employees' understanding and gaps in awareness between female and male employees, and introducing case studies from other companies.

Women in DIC Forum

Diversity lecture (2018)

People First CEO Yosuke Yagi

### *Cultivating Leadership Skills*

In a move designed to help enhance the management skills of female employees, in fiscal year 2016 DIC became a member of the Japan Women's Innovative Network (J-Win), registering one or two employees as individual members each year since. An NPO that assists efforts to promote and firmly establish diversity management in the workplace, J-Win engages in a broad range of activities, including advising and serving as a consultant for companies seeking to advance career opportunities for female employees, organizing seminars and lectures, and conducting surveys. DIC employees participate in a variety of J-Win programs with goals varying from improving project management capabilities and self-improvement to conducting research using diversity case studies and expanding networking efforts.

In fiscal year 2018, DIC established the Woman Leader Development Program (W-LDP). A total of 25 employees participated during the first session of this program, which lasts six months and features project-style training, while in fiscal year 2019 21 employees are taking part.

Thanks to these and other efforts to improve work environments, in fiscal year 2018 the voluntary separation rate for female employees of the parent company remained in the area of 2%, while the average years of service for female employees once again exceeded that for male employees. DIC continues taking decisive steps to increase its recruitment of new female graduates from technical schools and bachelor's and master's degree programs, expand career opportunities for female employees, conduct awareness seminars for employees qualified for executive and managerial positions, and expand its telecommuting system. Through such efforts, the Company aims to boost the percentage of management positions occupied by female employees to 8.0% by January 1, 2021. DIC has also formulated an action plan based on Japan's Act on Promotion of Women's Participation and Advancement in the Workplace.

## TOPIC

### Presentation Is Held on Results of Projects Implemented as Part of Program to Foster Female Leaders

In July 2018, a presentation was held at DIC's corporate headquarters in Tokyo on the results of projects implemented as part of the first session of DIC's W-LDP, which began in January. During this session, which lasted six months, a total of 25 top-ranking female employees selected from various departments participated in project-style training. Through project management that closely resembled actual situations, participants worked to acquire the ability to independently identify issues, formulate solutions, secure the cooperation of others and work tenaciously to produce concrete results.

For the presentation, teams of program participants addressed key issues facing future female executives in regard to challenges such as reforming work styles, transforming DIC's corporate culture and nurturing young employees, and proposed solutions to the General Affairs and HR Department. One participant commented that gaining experience in project management had strengthened her awareness of the difficulty of appealing to others to create a team, while another said that the that projects had necessitated close communication, facilitating the creation of a robust network of contacts across multiple Group sites.

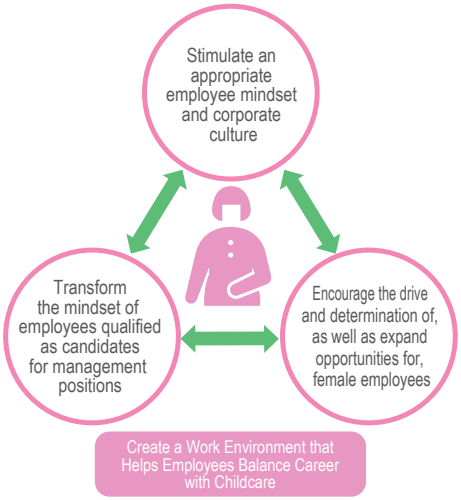
Presentation of project results

### Initiatives Aimed at Expanding Career Opportunities for Women

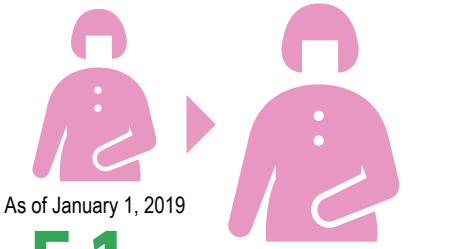
| | | |
|---|---|---|
| 2007 – 2015 | Transform corporate culture and the mindset of management-level employees | ●Message from the president<br>●Seminars to promote awareness<br>●Identical uniforms for male and female employees<br>●Training for employees in administrative positions |
| | Encourage the drive and determination of female employees | ●Seminars to promote awareness among female employees<br>●Introduction of role models |
| | Expand opportunities for female employees | ●Assignment of female employees to production and sales positions<br>●Inclusion of female employees in regular system of transfers, reassignments and job rotations<br>●Increase in number of women hired |
| | Establish systems to support a healthy work–life balance for female employees and encourage the use thereof | ●Establishment of systems to support a healthy work–life balance<br>●Publication of the Libra work–life balance support guide and introduction of e-learning program for employees taking leave<br>●Introduction of system allowing management-level employees to limit the locations to which they will accept transfers |
| 2018 and beyond | Further expand support to measures and promote awareness | ●Woman in DIC Forum<br>●Diversity seminar for directors and line supervisors<br>●Executive-led lunch seminars for female employees<br>●Roundtable discussion for directors<br>●Awareness seminars for female employees<br>●Career support seminars for female employees<br>●Woman Leader Development Program (W-LDP)<br>●Launch of telecommuting system<br>●Joint leadership development program with companies in other sectors<br>●Expansion of eligibility for flextime system |

### Policy for Advancing the Careers of Female Employees

DIC is committed to creating a work environment in which all employees can fully exercise their abilities. To this end, the Company pledges that female employees shall enjoy equal access to career opportunities as their male counterparts and that no gender-based restrictions or barriers shall be applied.




### Female Employees in Management Positions



As of January 1, 2019

**5.1%**

As of January 1, 2021 (Target)

**8.0%**

## TOPIC

### DIC Earns First Selection as Nadeshiko Brand for Fiscal Year 2018

In recognition of its superb achievements in expanding career opportunities for women, DIC was selected as a Nadeshiko Brand for fiscal year 2018, the first time it was honored under this program, which is sponsored by Japan's Ministry of the Economy, Trade and Industry (METI) and the Tokyo Stock Exchange (TSE). The Nadeshiko Brand initiative aims to introduce TSE-listed companies judged to be outstanding in terms of efforts to empower women in the workplace as attractive stocks for investors who emphasize medium- to long-term improvements in corporate value with the aim of accelerating such efforts. The initiative assesses approximately 3,600 companies across all TSE sections based on what they do to promote diversity-conscious management and their disclosure of related information.

With the aim of being an organization that enables a broad range of individuals to reach their full potential, DIC has positioned expanding opportunities for its female employees as the first step in its drive to promote diversity. Since fiscal year 2015, the Company has actively promoted a variety of initiatives in line with four key themes: Stimulate an appropriate employee mindset and corporate culture, support career-building, promote work style reforms and communicate publicly. In fiscal year 2018, DIC implemented a variety of important initiatives, including career-building support seminars attended by female employees and their superiors, a joint leadership development program with companies in other sectors, management panel discussions on the theme of diversity, and lectures for management-level employees. Reasons cited for DIC's selection as a Nadeshiko Brand included these initiatives, as well as its efforts to create work environments that are conducive to job satisfaction, including the introduction of flextime and telecommuting systems and instituting mandatory "no overtime days."

Ceremony announcing Nadeshiko Brand selection


Management panel discussion on diversity

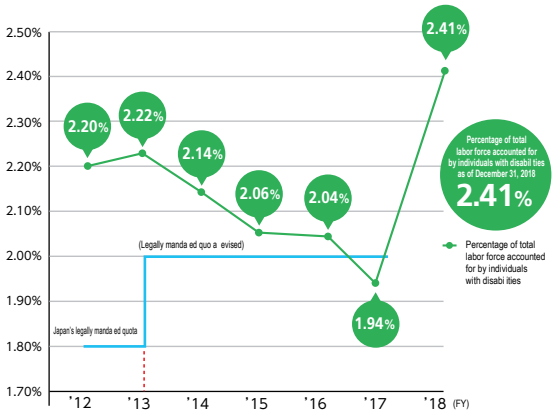

Career-building support seminar for female employees and their superiors

## 3 Advancing the Employment of Individuals with Disabilities

DIC is committed to creating inclusive work environments that help individuals with disabilities enjoy active and fulfilling careers. One initiative, which began in fiscal year 2015, is an internship program, organized in collaboration with a facility providing support for individuals with intellectual disabilities, designed to transition into full-time employment. In fiscal year 2018, three program participants were offered full-time clerical positions.

As of December 31, 2018, individuals with disabilities accounted for 2.41% of DIC's total labor force, exceeding Japan's legally mandated quota of 2.2%. Going forward, DIC will continue working with the Japanese government's Hello Work public employment security offices, as well as special needs schools and other organizations to promote the hiring of individuals with disabilities, and will take further steps to enhance work environments and increase workplace accessibility.

**Percentage of DIC's Total Labor Force Accounted for by Individuals with Disabilities**




## VOICE The kind voices of other employees and DIC executives give me a sense of pride in my job.

I joined DIC Estate in February 2017. My responsibilities are primarily the preparation and serving of tea to guests and the maintenance of employee-use tea dispensers situated on each floor of the DIC Building in Nihonbashi. Maintenance of the tea dispensers includes cleaning the drip trays and filters and replenishing supplies of tea and sugar. I prepare and serve tea to guests in the executive reception room on the third floor and clean up after the guests have left. Other employees always thank me for keeping the employee-use tea dispensers clean. DIC executives tell me that guests compliment my proper tea serving etiquette. Compliments like these give me a sense of pride in my job. I will continue working to keep the tea dispensers in tip-top shape for my colleagues, as well as to further improve my ability to prepare and serve delicious tea that pleases guests.

Business Support Department, DIC Estate Co., Ltd. **Akari Tanaka**

## 4 Reemployment after Retirement and Support for Retirement Planning

DIC has deployed a system that facilitates the reemployment until age 65 of individuals reaching retirement age (60) and wishing to remain with the organization. With available options including full-time work, short-time work and work sharing, this system enables reemployed individuals to maximize their experience and make full use of their accumulated technological capabilities and specialized expertise, thereby contributing to sustainable growth for the DIC Group and the training of subsequent generations.

DIC also offers classes for employees within a year of retirement that helps them prepare for life after their careers. These classes provide assistance with retirement planning and education regarding the national pension system, as well as offer retirement lifestyle simulations.

### Number of Reemployed Individuals

| | Fiscal year 2015 | Fiscal year 2016 | Fiscal year 2017 | Fiscal year 2018 |
|---|---|---|---|---|
| Number of retirees (A) | 126 | 108 | 69 | 89 |
| Individuals seeking reemployment | 104 | 92 | 55 | 74 |
| Number of individuals reemployed (B) | 97 | 91 | 55 | 70 |
| Reemployment rate (B) / (A) | 77.0% | 84.3% | 79.7% | 78.7% |

## Work Style Reform Initiatives that Support a Healthy Work–Life Balance

DIC views a healthy work–life balance as essential to both self-realization and sustainable corporate growth. Accordingly, from the standpoint of corporate health management*, the Company continues to expand systems intended to facilitate such a balance.

In response to falling birth rates and lengthening life spans, the Japanese government has launched a drive to promote work style reforms, in line with its belief that positive workplaces lead to higher productivity, with the aim of helping individuals balance the demands of a career and childcare or nursing care and improving productivity. Since well before this, DIC has promoted initiatives aimed at enabling all employees to realize both a satisfying work life and a fulfilling life outside work.

* An approach to employee health management that emphasizes a corporate management perspective and the implementation of strategic measures.

### 1 Enhancing Programs that Help Employees Balance the Demands of Work and Home

In 1986, DIC blazed a trail for chemicals manufacturers in Japan by implementing a childcare leave program. Since establishing a program to support employees in balancing the demands of a career and childcare in 2007, the Company has continued promoting measures that make it easier for employees to make use thereof. In fiscal year 2008, DIC acquired the Kurumin Mark, which recognizes companies that promote initiatives designed to assist employees in raising children. The Company also deployed a system that gives regular employees the option to accept or refuse transfers requiring relocation and, since 2012, a system that allows management-level employees to limit the locations to which they will accept transfers, making it easier for individuals who are unable to accept transfers that involve relocation because of childbirth, childcare, nursing care or other responsibilities.

#### Kurumin Mark Certification

In 2008, DIC was accorded the Kurumin Mark, which recognizes companies that actively promote initiatives designed to assist with child rearing, by Japan's Ministry of Health, Labour and Welfare.

#### *Promoting Measures to Retain Employees with Nursing Care Responsibilities*

In Japan, one of the social ramifications of falling birth rates and lengthening life spans is an increase in the number of people requiring nursing care, as a result of which more people find themselves having to leave their jobs to take care of family members. Steps taken by the government to help address these issues include revising the Child Care and Family Care Law in 2016 to make it easier for individuals to take leave or time off and increasing benefits for temporary absences from work. To encourage use and promote knowledge of its related leave programs, in June 2017 DIC began distributing the *Childcare and Nursing Care Handbook*. DIC has also revised the rules of these programs, including making it possible to break up nursing care leave, as well as to shorten workdays, thereby making it easier for employees to use them.


#### *Major Expansion of the Flextime System*

To facilitate flexible working styles, in fiscal year 2017 DIC resolved to significantly expand its flextime system and in April 2018 made the system applicable to all areas of operations other than production floors. The system makes it possible for employees to determine the time at which they end their working day to the extent that it does not hinder business efficiency, as well as to simultaneously make use of telecommuting, with the goal of promoting the independent execution of duties and enhancing self-management capabilities.

#### *Promoting Telecommuting*

In fiscal year 2016, DIC began exploring the potential of telecommuting, a flexible work arrangement that enables employees to work at home or another remote location using ICT, thus eliminating the time and location constraints of traditional work arrangements. The following year, employees and management conducted extensive talks to iron out details. After analyzing and evaluating the results of a trial involving 57 employees, in January 2018 the Company launched the DIC Telecommuting System, which is available to all employees regardless of position or workplace. As of December 2018, approximately 500 employees had registered to use the system.

Looking forward, DIC will continue to create systems that make it possible for employees to choose a working style that suits the type of work they do, as well as their own personal needs, with the aim of helping encourage a healthy work–life balance. The Company will also continue to promote the independent execution of duties with the aim of reinforcing self-management capabilities, thereby accelerating efforts to galvanize employees and encouraging them to give full play to their creativity.

## VOICE Thanks to the new telecommuting system, both my professional and private life are more fulfilling.

The way salespeople work has changed from back in the day and responsibilities other than visiting customers continue to increase. In addition to dealing with internal paperwork, I have to deal with environmental and legal/regulatory inquiries, so one or two days each week are taken up with deskwork. More than a few of these tasks are conducive to telecommuting. Like most other salespeople, I also work when I have a free moment between business trips and when I'm out of the office. Telecommuting allows me to focus before I leave for a business trip or when I get home, so I'm able to be much more efficient. I look forward making further use of the telecommuting system to achieve a work–life balance that suits me and helps ensure a more fulfilling professional and private life.

Manager, Tokyo EP Sales Group, Composite Material Products Division, DIC Corporation **Takuro Mikami**

## DIC Rates 3.5 Stars in the Second Nikkei Smart Work Survey

In November 2018, DIC earned a 3.5-star rating in the Second Nikkei Smart Work Survey, conducted in connection with an initiative by Nikkei, Inc., designed to support companies working to enhance productivity through work style reforms and contribute to socioeconomic sustainability and global competitiveness. The survey assigns stars (5, 4.5, 4, 3.5 or 3) to top achievers.

Nikkei uses the Nikkei Smart Work Survey to rate the success of participating companies to translate work style reforms into improved performance in the categories of human resources, innovation and market development. DIC's rating of 3.5 stars, an improvement from 3 stars in fiscal year 2017, was underpinned by high marks given actions taken to promote the implementation and use of technology, notably the adoption of tools to encourage global information sharing and the use of AI in product development, and to help realize diverse and flexible work styles, such as the introduction of a telecommuting system and the implementation of measures to advance the careers of female employees.

NIKKEI Smart Work ★★★½ 2019

## Work and Childcare Balance Support Programs

| | |
|---|---|
| Childcare Leave Program | The maximum length of leave is until the child reaches the age of 2 years and 6 months, which is one year longer than the legally mandated leave period. |
| Leave to Assist with Parenting Program | Male employees can take five days' paid leave during the eight weeks following their child's birth to assist with parenting. |
| Childcare While Working Program | Employees can shorten their workday by up to three hours until the end of a child's third year of elementary school. Employees can also stagger their working hours to accommodate childcare schedules. |
| Economic support system | This system enables employees on unpaid childcare leave to borrow a portion of their bonuses in advance to pay for, among others, fertility treatment or infant care facility fees. |
| Return to previous (or equivalent) position | Employees returning from childcare leave must be allowed to return to their previous position or to a position equivalent thereto. |
| Information sharing to promote program participation | DIC's views on support for work and childcare balance, as well as a guide to its various available systems and how to make use of them, are posted on the Company's website and intranet. |
| Nursing care leave system | Employees can take such leave for up to one year, exceeding the statutory maximum of 93 days. As of January 2018, employees may also break up leave without restriction. |
| Nursing Care While Working Program | Employees not wishing to take leave while providing nursing care can shorten their workday by up to two hours or opt for a system in which they shorten their days by two hours before or after prescribed working hours. As of January 2018, employees may also request to be excused from doing overtime without restriction. |
| Leave to accompany spouse overseas | Employees can take leave in the form of a temporary overseas assignment to accompany a spouse who is scheduled to be abroad for more than one year. The period of the leave must be more than one year, with a maximum length of three years. Employees may make use of this system once during their careers. |
| Relocation limitation system | Management-level employees may limit the locations to which they will accept transfers that involve relocating because of childbirth, childcare, nursing care or other responsibilities. |

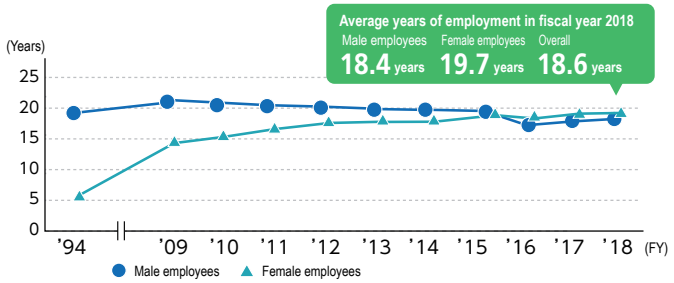
### Use of the Childcare Leave and Leave to Assist with Parenting Programs

Owing to the introduction of various programs to help employees in balancing the demands of work and home and the creation of an environment that encourages employees to take advantage of such thereof, the percentage of DIC employees who return to work after making use of the Childcare Leave Program is currently 100%. In addition, the number of individuals using the Leave to Assist with Parenting Program, which enables male employees to take time off in the weeks after the birth of a child to assist their partner, has risen.

Thanks to efforts to enhance these systems, the average years of employment for female employees has increased and continues to exceed the average for male employees.

| | Fiscal year 2014 | Fiscal year 2015 | Fiscal year 2016 | Fiscal year 2017 | Fiscal year 2018 |
|---|---|---|---|---|---|
| Number of employees using the Childcare Leave Program | 28 | 29 | 35 | 35 | 21 |
| Number of employees using the Leave to Assist with Parenting Program | 63 | 64 | 62 | 77 | 81 |

### Average Years of Employment (Including Individuals Seconded to Group Companies)




### 2 Reducing Extreme Overwork and Encouraging Employees to Take Annual Paid Leave

DIC has deployed an electronic system to manage on-site hours, working hours and approved overtime hours. As a measure to prevent extreme overtime, if an employee exceeds the agreed-upon overtime limit (80 hours/month), his or her supervisor and the senior executive in charge are automatically notified so that steps can be taken to ameliorate the situation. The supervisor is required to submit a report outlining the employee's work and the reasons for the excessive hours while also presenting specific measures to ameliorate the situation, which is also shared with the DIC Employees' Union, a process designed to curb extreme overwork.

In addition, the Company has instituted a mandatory Groupwide "no overtime day" every Wednesday and on payday, which in Japan is once a month at month-end, in a bid to encourage efficient work practices and bolster productivity. (Sites can change these days as appropriate.) DIC also encourages employees to take annual paid leave, notably by recommending leave timing at each site and having employees plan dates for such leave.

### Average Monthly Overtime Hours Worked and Annual Paid Leave Taken

| | Fiscal year 2014 | Fiscal year 2015 | Fiscal year 2016 | Fiscal year 2017 | Fiscal year 2018 |
|---|---|---|---|---|---|
| Average monthly overtime hours worked per employee | 12.2 hours | 12.1 hours | 12.3 hours | 12.2 hours | 12.0 hours |
| Average annual paid leave granted | 19.1 days | 18.8 days | 19.1 days | 18.8 days | 18.6 days |
| Average annual paid leave used | 11.0 days | 11.2 days | 12.0 days | 12.0 days | 12.5 days |
| Usage rate for annual paid leave | 57.6% | 59.6% | 62.8% | 63.8% | 67.2% |

## Human Resources Infrastructure Reform

With the rapid expansion of its global operations, DIC recognizes that securing and fostering human resources around the world and creating an environment that encourages cross-border career advancement and mobility is essential to increasing corporate value. To these ends, since fiscal year 2015 the Company has sought to develop harmonized promotion, personnel evaluation and remuneration systems, the cornerstone of the global human resources management framework for DIC Group companies under its jurisdiction. In January 2018, DIC and DIC Graphics unified qualification standards for its 1,300 management-level (i.e., manager and above) employees, replacing traditional ability-based standards with role-based standards. As a consequence, consistent duty- and role-based standards are now used for the majority of such employees in the Americas, Europe, the Asia–Pacific region, the PRC and Japan. The Group has also integrated its evaluation systems for Group company presidents and other executives in Japan and overseas with the goal of encouraging management approaches that are optimal for the Group as a whole from both a medium- and a long-term perspective. The Group also integrated its global personnel policies to ensure that remuneration is in keeping with local market levels and individual job responsibilities.

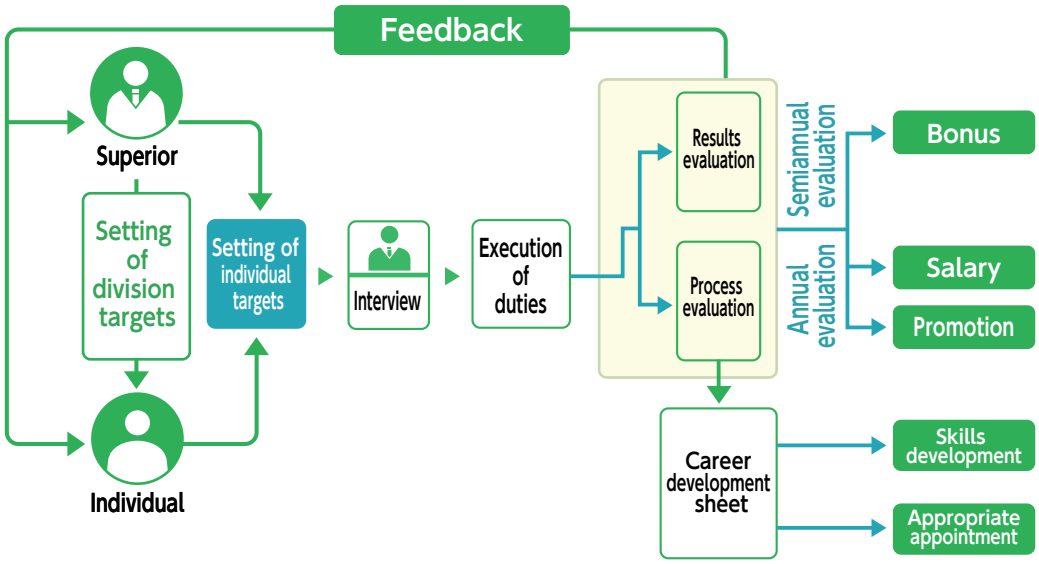
In addition to these efforts, under DIC111 DIC will advance efforts to consolidate employee qualification systems worldwide, unify qualification standards and assessment formats for management-level employees, and develop an IT system to facilitate the construction of a global human resources platform. Through such efforts, the Company will realize consistent Groupwide global human resources and personnel management systems.

## Securing and Fostering Human Resources

### 1 Ensuring Fair and Consistent Treatment

To ensure that the efforts and achievements of all employees are reflected appropriately in their treatment, DIC has consolidated its numerous employee qualification systems irrespective of job classification and educational credentials. The selection of employees to recommend for qualification is done through screening based on objective standards, thereby guaranteeing equal opportunities for promotion to all motivated, capable employees.

Remuneration and personnel evaluation systems designed to enhance job satisfaction and ensure that individual employees' abilities and achievements are assessed appropriately and reflected in a timely manner. Of note, the Company has introduced MBO—a goal-setting management tool that promotes both corporate growth and employee development—into its personnel evaluation system. Results of individual evaluations are fed back in full to employees, including reasoning behind determination, in a transparent process that ensures employees are largely satisfied with evaluation results.




### 2 Establishment of the Next Management Selection Process

In line with a strategy outlined in DIC111 to establish a process for selecting the next management team, in fiscal year 2018 the Company embarked on a trial aimed at realizing the mechanism for such a system. The Human Resources Strategy Department, created in January 2019, will promote clarification of qualifications for key positions. The department will also explore processes for selecting and monitoring promising human resources as well as for the Talent Management Committee to use in matching candidates to positions.

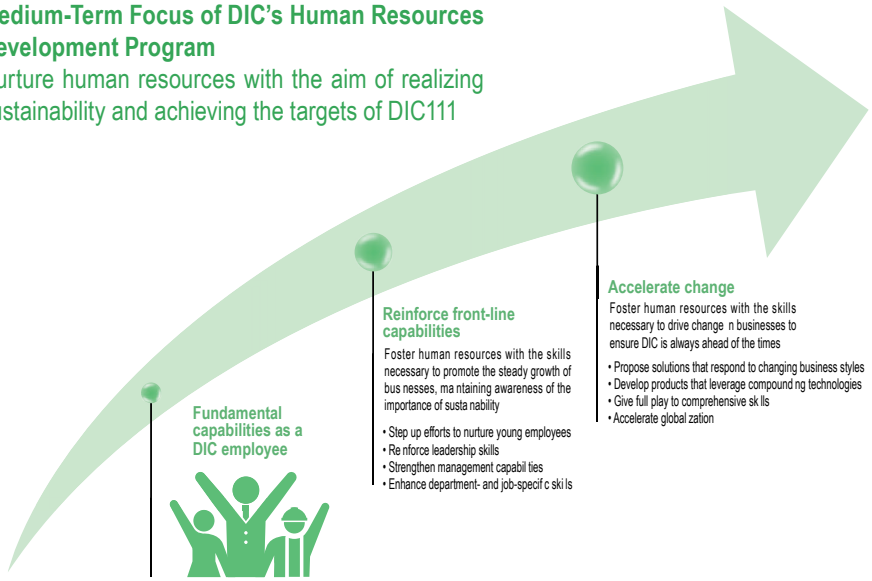
### 3 Fostering Human Resources to Reinforce Front-Line Capabilities and Accelerate Change

Having recognized fortifying Group organizational capabilities and enhancing the skills of its people as important challenges, DIC has declared the medium-term focus of its human resources development program as being to nurture human resources capable of reinforcing front-line capabilities and accelerating change.

This program, which is divided into six categories, is based on curricula that emphasize a systematic approach to helping each employee acquire critical skills. Since fiscal year 2016, training has emphasized the concepts of "global" and "diversity," with areas emphasized including training to improve English-language skills and Japanese-language training for non-native speakers.

**Medium-Term Focus of DIC's Human Resources Development Program**

Nurture human resources with the aim of realizing sustainability and achieving the targets of DIC111



### DIC Training Programs

| | | |
|---|---|---|
| Management-level training | Promote globalization, strengthen/foster the ability of management-level employees to deal with risks | DIC Management School, media training |
| Global human resources development | Systematic efforts to foster managers and employees of overseas Group companies, enhance the skills of Japanese employees assigned to overseas posts, improve the Japanese-language abilities of employees who are not native speakers | Preparatory training for employees assigned to overseas posts, Next Global Human Resources Development Program, Target Global Program (training to enhance English-language communication skills), Effective E-Mailing (training in how to compose e-mails in English), Japanese-language training for employees who are not native speakers, Area studies |
| Level-specific training | Education and training to equip employees with the skills to fulfill responsibilities at each level | Qualification-specific training (J, M, S, senior); training tailored to different management ranks |
| Department- and job-specific training | Education and training to enhance capabilities required by different departments and jobs | Human resources development programs tailored to production departments (Kaizen Skill Improvement Training Program, others), technical departments (training to support the ability to propose R&D themes, others), sales departments (training to cultivate proposal development capabilities, others) and support departments ("why-why analysis" training, others) |
| On-the-job training | Hands-on training in the workplace to foster employees and cultivate skills | Workplace-specific on-the-job training, domestic technical department trainee program, Overseas Trainee Program, Global Capability Development (GCD) Program |
| Self-development | Support for employees seeking to enhance their skills | Correspondence courses, e-learning courses, in-house seminar courses, Skype-based English conversation courses, preparatory courses for the TOEIC Institutional Program (IP) Test |

***Training to Enhance Proposal Development Capabilities***

Since fiscal year 2013, DIC has offered a series of courses that focus on cultivating prowess in the area of proposal development, in line with its goal of reinforcing front-line capabilities. In the advanced course, which primarily targets senior manager–level employees, groups of five or six individuals from sales and technical departments form cross-department project teams, which select practical customer-centered themes, and work to formulate solutions to pertinent hypothetical issues and further hone their ability to prepare and present proposals. The course, which lasts nine months, encompasses approaches to development of innovative proposal themes and angles, problem solving and persuasive presentations, among others, with professional business consultants offering advice and guidance at each stage.

Course work is in addition to participants' regular responsibilities, so participants have a lot on their plates, but they find that they are able to apply newly acquired skills almost immediately, greatly improving front-line capabilities. Participants have also used their selected themes to make proposals to actual customers, many of which have reached the verification stage.

## Global Talent Development

DIC has positioned the fostering of global human resources as a key theme of DIC111. Accordingly, the Company is taking steps to, among others, define the level of and set requirements for global human resources, as well as to systematize training (English-language ability, competency and work experience) programs.

***Offering the Overseas Trainee and GCD Programs***

The goal of DIC's Overseas Trainee Program is to foster global human resources by dispatching selected employees from Japan to work at a DIC Group company in another country for a specified period, thereby helping them develop a more international mindset, improve their skills and build networks with their colleagues overseas. As of the fiscal year 2018 year-end, 13 individuals were participating in this program.

Under the GCD Program, employees from overseas Group companies are sent to work at DIC Group companies in Japan. Positioned as part of the Group's effort to foster global human resources and promote diversity, this program gives future business leaders a chance to learn new skills and Japanese business techniques and to network with Group colleagues, as well as to deepen their understanding of Japan's culture and commercial practices. This program also brings domestic employees in contact with other cultures and provides an opportunity for them to polish their English-language skills and acquire a global perspective. In fiscal year 2018, Group companies in six countries sent GCD Program participants to spend between three months and one year at sites in Japan. Through the Overseas Trainee and GCD programs, DIC seeks to advance the globalization of the overall DIC Group, as well as to encourage smooth cooperation between Group companies in Japan and their counterparts overseas.

**Overseas Trainee Program Destination and Number of Employees Dispatched in Fiscal Year 2018**

| | |
|---|---|
| United States | 4 |
| Malaysia | 1 |
| Indonesia | 1 |
| Austria | 1 |
| India | 1 |
| PRC | 2 |
| United Kingdom | 2 |
| Vietnam | 1 |

**Country of Origin and Number of Participants in the GCD Program in Fiscal Year 2018**

| | |
|---|---|
| Indonesia | 3 |
| PRC | 6 |
| ROK | 3 |
| Singapore | 1 |
| Malaysia | 1 |
| United Kingdom | 1 |

### Encouraging Understanding of Islamic Culture

Fostering an understanding of religion-based differences in everyday lifestyles is an important aspect of DIC's efforts to promote diversity. In February 2017, prior to the arrival of GCD Program participants from Indonesia, managers and assistant managers at the Kashima Plant, in Ibaraki Prefecture, attended a lecture designed to give them a basic knowledge of Islamic culture, during which they learned about practices that have developed around the religion of Islam, which is the religion of 80% of Indonesians, including praying five times a day, eating *halal* food (food that conforms with Islamic dietary laws) and fasting during the month of Ramadan. The lecture helped the plant make necessary preparations for its visitors, including setting aside a space for prayer during the day and giving consideration to working hours, food choices and other factors after they arrived. Despite a certain amount of initial bewilderment on the part of both plant employees and program participants, earnest efforts to communicate helped enhance understanding of each other's cultures and customs. In March 2018, the two Indonesian employees completed their assignment and returned home. Information on the Indonesian employees' experiences at the Kashima Plant were shared with other Group production facilities in Japan, helping ensure a welcoming environment for new recruits from Malaysia who joined DIC in fiscal year 2018.

### Next Global Human Resources Development Program

Since fiscal year 2017, DIC has offered the Next Global Human Resources Development Program for mid-tier employees designed to enhance global business skills. Each year, 20 individuals in their 30s and 40s are selected to take part in the program, which includes language classes taught by native English speakers that focus on improving presentation, negotiation, debate and other skills. The Company also provides individual training designed to improve English-language capabilities, including one-on-one Skype-based training focused on improving conversational skills and TED talk* listening and dictation classes. At the conclusion of the 11-month program, in April, participants divide into six teams, each of which is tasked with discussing their vision for DIC 10 years in the future and giving a presentation on the topic in English to the president and executive officers, as well as to their own boss and colleagues. All individuals who complete the program receive a certificate. DIC looks forward to continuing to offer this program, which it views as crucial to fostering the Company's next generation of executives.

* TED (Technology, Entertainment, Design) talks are conferences conducted by U.S. media NPO TED, LLC, that are posted online for free distribution. The talks address a wide range of topics and are given by front-line leaders in various fields invited to serve as speakers.

Next Global Human Resources Development Program

VOICE **This is what I learned as a participant in the second round of the Next Global Human Resources Development Program.**

Ever since I joined DIC, I have felt a need for English in my work and wanted to do something about my poor English skills, but before I realized it 20 years had passed! When I was given the opportunity to participate in the second round of the Next Global Human Resources Development Program, I saw it as my last chance to study English seriously.

About 80% of the 11-month program was conducted in English, so it was tough going and I spent a lot of time feeling puzzled and stressed, but under the guidance of the program's knowledgeable, experienced and passionate instructors I not only improved my English but also acquired key skills necessary to function in a global business environment. I found the three global communication skills assessment sessions particularly useful as they helped strengthen my English-language presentation, negotiating and communication skills. I'm proud to say that I was definitely among the most enthusiastic and studious participants!

The benefits of the program were not limited to improved skills. The extremely challenging nature of training encouraged participants to commiserate. As a result, we all got to know colleagues from other departments, creating a network of program participants that will surely be a valuable asset going forward. I will continue to build on what I learned in this program, as well as to polish my English so that I am ready when the opportunity to work overseas arises.

General Manager, Performance Material CS Group, Performance Material Products Group, DIC Corporation **Kengo Sakamoto**

## Caring for Mental and Physical Health

DIC takes steps to create environments in which employees feel physically and mentally supported and works to ensure that its labor management practices comply with relevant laws. The Company places a high priority on caring for psychological and emotional well-being and has established a comprehensive mental health program, highlights of which include engaging an in-house occupational psychologist, promoting initiatives aimed at warding off mental health problems and extending support to ensure a smooth return to work for employees taking leave. In particular, access to counseling provided by an occupational psychologist has had a considerably positive impact in terms of ensuring employees get treatment and are able to return to work as quickly as possible.

DIC has also offered voluntary stress checks since fiscal year 2013 and promotes active, systematic efforts with the aim of preventing mental health disorders in accordance with related legislation passed in Japan in fiscal year 2016. In fiscal year 2017, DIC conducted seminars led by an in-house physician at sites that have scored above a certain level in voluntary stress checks and provided counseling aimed at helping employees improve communications with supervisors, colleagues and family members. The Company will promote the ongoing, systematic implementation of these initiatives.

### Mental Health Initiatives

- Guidance from an in-house occupational psychologist (engaged as an occupational physician since fiscal year 2012)
- Internal and external help desks
- Line-care training* for supervisors
- Mental health self-checks as a part of training for new employees
- Distribution of *Kokoro no Kenko* (“Psychological Health”) self-check handbook to all employees
- Flexible process to support employees returning to work after taking leave

* Line-care training: Training for supervisors to help them recognize promptly when an employee is unwell and respond appropriately by, for example, recommending guidance or counseling or making workplace improvements.


*Kokoro no Kenko*
self-check handbook

### Initiatives to Support Employee Health

DIC has always analyzed the results of employees’ annual physicals and provided assistance to employees for whom lifestyle improvements have been recommended by providing introductions to hospitals and clinics. The Company has also sought to contribute to good health for employees by encouraging the use Spirulina—a noted superfood* that is manufactured by a DIC Group company—as an ingredient in cooking.

In fiscal year 2016, DIC’s Healthcare Office and the company responsible for the operation of the corporate headquarters’ employee cafeteria collaborated to develop a new healthy cafeteria menu. The new menu, dubbed “DIC Irodori Care+” (“DIC Colorful Care+”) was launched in February 2017, beginning with the cafeteria at the Company’s corporate headquarters in Tokyo, with distinctive signage used to promote recognition and a clear explanation provided of the benefits of menu selections, including reduced calories and low sodium content, to encourage use.

DIC will continue implementing measures designed to help ensure the physical and mental health of its employees as part of its commitment to creating a work environment in which all employees can fully exercise their abilities.

* The term “superfood” is used to describe standard foods with an excellent balance of nutrients that provide health benefits and foods containing specific nutrients and/or ingredients good for human health.

DIC Irodori Care+

A new healthy cafeteria menu selection

### DIC Earns “White 500” Certification in the Health & Productivity Outstanding Entities Recognition Program

DIC earned certification in the large enterprise category (dubbed the “White 500”) of the 2019 Health & Productivity Outstanding Entities Recognition Program, which is organized by Japan’s Ministry of Economy, Trade and Industry (METI) and Nippon Kenko Kaigi*1. This is the second consecutive year the Company has been certified under this program. By shining a spotlight on outstanding enterprises working to advance health and productivity management, this program seeks to create an environment that ensures such enterprises gain enhanced public recognition—i.e., from employees, jobseekers, related companies and financial institutions—as organizations that approach employee health and productivity from a management perspective and promote strategic initiatives.

2019 健康経営優良法人 Health and productivity ホワイト500

In addition to looking at whether enterprises stipulate health management in their corporate mission and disclose pertinent information, the Health & Productivity Outstanding Entities Recognition Program assesses performance based on three criteria, namely, grasp of employee health-related issues and consideration of actions, establishment of a foundation for the practical implementation of health and productivity management measures and work engagement*2, and promotion of efforts that help ensure the physical and mental health of employees. In both 2018 and 2019, DIC received scores significantly above the industry average for all three of these criteria, finishing in the top 20% with a five-star rating.

Going forward, DIC will continue to implement measures designed to help ensure the physical and mental health of its employees as part of its commitment to creating a work environment in which all employees can fully exercise their abilities.

*1 Nippon Kenko Kaigi (“Japan Health Council”) is an organization that liaises with private companies, with the full backup of the government, to put effective measures in place to prolong the healthy life expectancy of citizens and to ensure sound medical services in Japan.
*2 A concept used to measure employees’ mental health, work engagement is described as a positive, fulfilling work-related state of mind that is characterized by vigor, dedication and absorption. “Vigor” is taking pride and experiencing a sense of satisfaction in one’s work, “dedication” is feeling strongly involved in and focused on one’s work, and “absorption” is being actively engrossed in one’s work.

### DIC Group Site Employee Cafeterias Earn Smart Meal Certification

The employee cafeterias at DIC's corporate headquarters, Osaka Branch Office and Sakai Plant earned certification in the "Meal Program" category of the fiscal year 2018 Smart Meal Program, earning the highest possible rating of 3 stars. The Smart Meal Program, which is administered by a consortium of 11 academic associations, including the Japanese Society of Nutrition and Dietetics and the Japanese Society of Nutrition and Food Service Management, was established to recognize restaurants, corporate facilities and other establishments that promote the continuous provision of nutritionally balanced menu options—i.e., "smart meals"—in healthy eating environments.

Under the Smart Meal Program, restaurants, corporate sites and other establishments that satisfy essential requirements, which include a menu that meets Smart Meal standards and the creation of an appropriate management system and easy-to-understand efforts to communicate benefits, and 10 or more optional conditions related to the promotion of healthy diets and eating environments, earn certification with a 3-star rating.

Certification under the Smart Meal Program is divided into two classes: "Wholesome" (450–650 kcal) and "Hearty" (650–850 kcal). DIC's corporate headquarters was certified in both classifications, while the Osaka Branch Office and the Sakai Plant were certified in the "Wholesome" class. All three also work with the companies responsible for the operation of their employee cafeterias to improve cafeteria quality. At corporate headquarters, these efforts focus on developing menus that take into account the results of annual employee health checkups. At the Osaka Branch Office, the focus is on promoting health consciousness by providing clear, age-specific information on energy consumption, while at the Sakai Plant the emphasis is on creating menus that reflect the results of employee polls and make use of regional ingredients.

Smart Meal
スマートミール

VOICE **We sought to develop a uniquely DIC program of everyday meals that would contribute to the health of employees.**

Individual DIC sites promote a variety of menu alternatives that encourage employees to be more conscious of the relationship between their health and what they eat. At corporate headquarters, we planned a menu of colorful vegetable-rich deli-style options and nutritious side dishes, which we dubbed "DIC Irodori Care+" ("DIC Colorful Care+"). The response has been extremely positive, underscoring general support for food that is both enjoyable and contributes to good physical health.

We were pleased to see DIC Irodori Care+ earn certification under the Smart Meal Program and will work to further enhance the quality of the menu. I look forward to continuing to work with our Healthcare Office and the company responsible for operation of the corporate headquarters' employee cafeteria to help ensure the health of employees.

General Affairs and HR Department, DIC Corporation **Naoko Ogawa**

# Sustainable Procurement

SDGs Goal 12

## Promoting Socially Responsible Procurement Across the Supply Chain

### Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objective of initiatives | Goals for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Promote CSR procurement. | For raw materials procured in Greater China, minimize procurement-related risks by closely inspecting the responses to environmental regulations and implementing countermeasures to address issues. | On-site inquiries were conducted at 11 suppliers in the PRC, enabling DIC to gain a grasp of current conditions from the perspective of sustainability. For raw materials subject to procurement-related risks, this led to the formulation of measures to reduce such risks, including shifting to supply sources outside the PRC. | ★★ | For Greater China–based suppliers of materials (including primary raw materials) for which the DIC Group depends heavily on the PRC, reduce procurement-related risks by closely inspecting sustainability efforts, including responses to environmental regulations, and implementing countermeasures to address issues. |
| | For suppliers of raw materials used in core businesses that are based in the Asia–Pacific region, implement detailed inquiries regarding efforts to address the aging of equipment, among others, to gain a solid grasp of risks, thereby ensuring procurement stability, from the perspective of business continuity. | DIC began conducting on-site inquiries at raw materials suppliers in India, but the implementation of detailed inquiries in other regions was positioned as a key initiative for fiscal year 2019. | ★★ | Reduce procurement-related risks by seeking out supply sources other than Greater China from the perspective of ESG, among others, to diversify supply sources. |

## Basic Approach to Sustainable Procurement

Having recognized the increasing importance of addressing global issues related to human rights, climate change and water risk, among others, as social imperatives, the DIC Group promotes socially responsible procurement practices. To ensure its extended supply chain functions in a socially responsible manner, the DIC Group established the DIC Group Universal Purchasing Policy, based on which it also formulated purchasing management regulations, in 2008 and the DIC Group CSR Procurement Guidelines, which clarify issues it expects suppliers to address, in 2009. Using the policy and guidelines, the Group promotes CSR procurement across its supply chain by ensuring that all suppliers implement improvements and initiatives necessary to ensure the sustainability of Group procurement. Group companies in Japan, the Americas and Europe, Greater China and the Asia–Pacific region collaborate to ensure sustainable procurement on a global basis.

Note: For more information, please visit WEB **http://www.dic-global/en/csr/stakeholder/partner.html**

## The DIC Group Universal Purchasing Policy

Guided by an action policy established to realize the DIC Group's basic sustainable procurement principles, the Purchasing Department adheres to the following guidelines in dealing with suppliers:

### ❶ Fair and transparent business practices

The DIC Group will implement fair and open purchasing activities with suppliers based on global perspectives, without the constraints of conventional commercial customs.

### ❷ An appropriate purchasing process and the building of relationships of mutual trust

The DIC Group, as a good partner for suppliers, will build long-lasting, mutually trusted relationships with suppliers and work together with them for mutual harmony and benefit, while complying with relevant regulations/social norms, domestic and overseas, and pursuing adequate quality and prices.

### ❸ Satisfying environmental/safety needs

The DIC Group will take responsibility as an exemplary corporate citizen for environmental affairs, occupational safety, human health and product quality, always take into account changes in society and implement environment-friendly purchasing activities.

### ❹ Challenge the creation of new value

In order to respond at a high level to a new value sought by society, the DIC Group will proactively challenge the creation of such value together with suppliers, with whom the same goal can be shared, and strive to grow together with them in a sustainable manner.

## The DIC Group CSR Procurement Guidelines

1. Compliance with laws and social norms
2. Respect for human rights and consideration for work environments
3. Safety and hygiene
4. Promotion of sound business management
5. Consideration for the environment
6. Information security
7. Appropriate quality and safety and improved technologies
8. Flexible attitude to ensure stable supplies and respond to change
9. Contribution to local communities and society
10. Promoting CSR and deploying it in the supply chain

## Encouraging CSR Procurement

Based on the DIC Group Universal Purchasing Policy, and incorporating requirements contained in guidebooks put out by external organizations including the Japan Electronics and Information Technology Industries Association (JEITA), DIC formulated the DIC Group CSR Procurement Guidelines, a series of requirements pertaining to ESG-related imperatives, including the management of chemical substances in and reduction of the environmental impact of raw materials, as well as respect for human rights across its entire supply chain. With the aim of compelling suppliers to observe these guidelines, the DIC Group conducts assessments and on-site inquiries in accordance with the *DIC Group Supply-chain CSR Deployment Guidebook*. (Version 2 of the guidebook was published in July 2013.) In addition to obliging suppliers to ensure the stringent management of chemical substances through the DIC Group Green Procurement Guidelines, the Group entreats suppliers to develop and release products that have less of an impact on the environment and promote green procurement themselves. The Group also encourages suppliers to lower the environmental impact of materials they procure, and of the packaging, transport, production and engineering thereof, by trimming resources and energy used in, decreasing the weight and expending the useful life span of, and reducing $CO_2$ emissions from such materials. Such measures have proven effective in strengthening the Group's relations with suppliers.

## The DIC Group Green Procurement Guidelines

In line with the DIC Group Universal Purchasing Policy, DIC formulated the DIC Group Green Procurement Guidelines, which prohibit the procurement of materials containing hazardous substances in seven categories*1. The guidelines mandate the submission of a DIC Raw Materials Survey, an SDS and a chemSHERPA*2, as well as a DIC Group Green Procurement Guidelines Survey, when purchasing raw materials, thereby creating a system for eliminating substances of concern. Submission of a Conflict Minerals Survey is also required.

*1 (1) Substances the production of which is prohibited, as outlined in Article 55 of Japan's Industrial Health and Safety Act; (2) Substances designated as class 1 specified chemical substances in Japan's Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; (3) Substances designated for monitoring under Japan's Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; (4) Chemical substances the production of which is already prohibited, as detailed in Japan's Act on the Protection of the Ozone Layer Through the Control of Specified Substances and Other Measures (ozone-depleting substances listed in the Montreal Protocol); (5) Specified particulates denoted in Japan's Air Pollution Control Act; (6) Specified poisonous substances indicated in Japan's Poisonous and Deleterious Substances Control Act; and (7) Specified substances detailed in the Stockholm Convention on Persistent Organic Pollutants.

*2 chemSHERPA is a scheme designed to facilitate the accurate and efficient sharing of information on chemical substances in products across the entire supply chain. DIC began using chemSHERPA in late fiscal year 2017.

## Advance Assessment of New Suppliers

In addition to requiring submission of the four mandatory documents listed above, as well as a Conflict Minerals Survey, DIC conducts comprehensive advance assessments of major new suppliers, including from a CSR perspective.

## Supplier Self-Evaluation

In accordance with version 2 of the *DIC Group Supply-chain CSR Deployment Guidebook*, the DIC Group asks suppliers to complete questionnaires, which it uses to ascertain the status of suppliers' CSR procurement practices. The questionnaire further segments the Group's 10 procurement guidelines into 46 issues, including green procurement, acquisition of ISO 14001, consideration for human rights and the work environments, and promoting CSR procurement to secondary suppliers.

*DIC Group Supply-chain CSR Deployment Guidebook (Ver. 2 in English) (published in July 2013):* WEB **http://www.dic-global.com/en/about/purchase/pdf/dic_sc_csr_en.pdf**

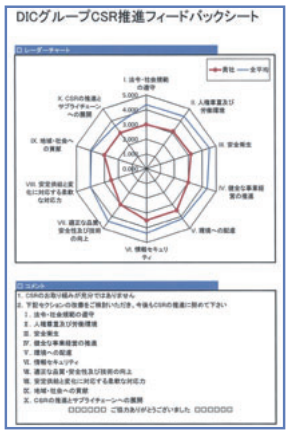
## Analyzing the Results of Questionnaires

In fiscal year 2018, the DIC Group conducted assessments for 24 new and continuing suppliers using version 2 of the *DIC Group Supply-chain CSR Deployment Guidebook*. This brought the total number of suppliers assessed between November 2013 and December 2018 to 753, accounting for 90%-plus of its procurement spending. In addition to analyzing and assessing questionnaire responses, the Group provided feedback to all 753 suppliers and where necessary requested corrective measures for significant issues through on-site inquiries or written comments. In fiscal year 2019, the Group plans to update the *DIC Group Supply-chain CSR Deployment Guidebook*.

**Cumulative Number of Suppliers Assessed (November 2013–December 2018)**

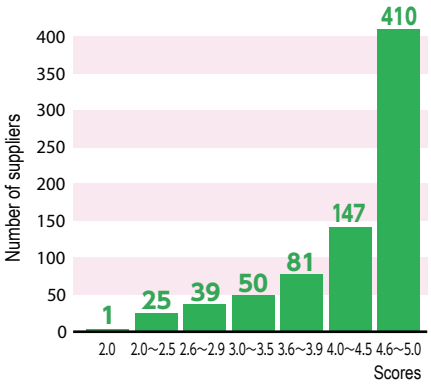
**753**

Equivalent to 90%-plus of procurement spending




Feedback sheet

**Assessment Distribution Chart (753 Suppliers)**




Low → High

Note: Based on DIC's analysis of questionnaire responses, 91% of suppliers assessed to date scored 3.0 or higher on the Group's 5.0-point scale.

## Conducting On-Site Inquiries

From fiscal year 2011 through fiscal year 2018, the DIC Group conducted on-site inquiries for 81 suppliers. The objective of these inquiries is to help suppliers further their understanding of CSR. In an on-site inquiry, the Group and the supplier confirm the responses provided by the supplier in the assessment questionnaire. Other efforts include introducing examples of Group initiatives designed to advance CSR procurement and realize sustainability.

## Global Procurement Initiatives

In fiscal year 2018, DIC and regional headquarters in the PRC and the Asia–Pacific region cooperated to conduct on-site inquiries for 11 suppliers in core businesses in the PRC based on the suppliers' CSR procurement assessment responses. DIC also worked with these suppliers to fortify understanding of issues related to local environmental regulations, and of environmental issues in the supply chain related to local legal and regulatory compliance, as well as to request corrective actions. Information on these on-site inquiries was shared at a global procurement conference with Sun Chemical.

## Ensuring the Sustainable Procurement and Use of Raw Materials

The DIC Group promotes the sustainable use of raw materials from a medium- to long-term perspective. This includes giving consideration to a wide range of factors, including climate change and resource conservation, when using recyclable materials. Looking ahead, the Group will expand the global application of its sustainable raw materials initiatives.

## Conflict Minerals

In compliance with the U.S. Securities and Exchange Commission (SEC)'s requirement for listed companies to report on their use of conflict minerals, the DIC Group published its Basic Policy concerning Conflict Minerals on its global website. This policy outlines the Group's pledge to refrain from using gold, tantalum, tungsten and tin, which are classified as conflict minerals, that is, minerals mined in conditions of armed conflict and abuse in the Democratic Republic of the Congo and its neighboring countries. The policy also states that should any raw materials purchased from third-party suppliers be found to contain conflict minerals, the DIC Group will immediately terminate the procurement thereof. The DIC Group uses the Conflict Minerals Reporting Template prepared by the Responsible Business Alliance (RBA) and the Conflict-Free Sourcing Initiative (CFSI), to conduct conflict minerals audits across its entire supply chain. As of December 2018, responses had been received for more than 90% of the items currently procured by Group purchasing departments. In fiscal year 2019, the Group has begun conducting audits using the Cobalt Reporting Template, which addresses cobalt in the supply chain.

## VOICE We are pursuing continuous improvements with the aim of ensuring sustainable procurement.

I have worked in the Purchasing Department of Siam Chemical Industry for roughly 24 years.

Today, companies worldwide face an ever-more diverse array of challenges, including rising awareness of the need to achieve sustainability. The role of Siam Chemical Industry's Purchasing Department has been changed so as to move forward activities with an accurate understanding of social requirements based on the DIC Group's basic sustainability policy, which emphasizes CSR. Accordingly, the department now has the added responsibility of reducing social and environmental impacts through cooperation with partners and customers across our supply chain. The department will work diligently in this regard, and will also convey information in a timely manner as stakeholders today are as interested in environmental and social governance as they are in quality, cost and delivery (QCD).

Siam Chemical Industry was awarded a silver medal for its CSR performance by EcoVadis in February 2019. We hope to eventually earn a gold medal by strengthening our supply chain through ongoing improvement activities, rather than being satisfied with where we are now. This will not be easy. As the requirements of customers and society change constantly, it is necessary to realize sustainable procurement corresponding to that change.

I will continue to learn more about sustainable procurement and will work to further promote the exchange of information with both suppliers and the DIC Group, thereby increasing understanding as well as support to ensure we meet our goals. I would also like to see the DIC Group as a whole realize more advanced sustainable procurement.

Purchasing Department, Siam Chemical Industry Co., Ltd. **Wantanee Prodpran**

# Business Models that Respond to Social Imperatives

## Cultivating Next-Generation Businesses

SDGs Goals 8, 9 and 11


### Goals and Achievements of Major Initiatives

Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objective of initiatives | Goals for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Propose solutions-oriented businesses that respond to social imperatives. | Implement value chain–oriented marketing and emphasize two perspectives, namely, DIC Group products and customers/regions, with the goal of expanding the Group's operating foundation and helping to increase consolidated net sales. | Through collaboration with biotech start-ups and efforts to create next-generation businesses such as thermally conductive fillers and environmental sensors, the DIC Group made steady progress toward entering promising new markets. | ★★★ | Bolster collaboration with external organizations and promote prompt commercialization with the aim of advancing the creation of next-generation businesses that enhance sustainability and reinforce the Group's ability to propose supply chain–oriented solutions. |
| | Participate in trade shows for key customer industries in Japan and overseas to strengthen the DIC brand and promote digitization to improve efficiency. | The DIC Group participated in major trade shows such as Tokyo Pack 2018, FINETECH JAPAN and CHINAPLAS 2018. Private exhibitions were also staged for customers. | ★★★ | Participate in trade shows for key customer industries in Japan and overseas to strengthen the DIC brand and promote digitization to improve efficiency. |

## New Pillar Creation: Promoting New Businesses that Respond Accurately to the Changing Needs of Society

The DIC Group sees one of its key missions as being to achieve sustainable growth both for itself and society by helping to address social imperatives related to climate change, the digitization of society, urbanization and longevity by identifying key business domains and providing products that respond to such imperatives.

With the goal of swiftly realizing this mission, DIC has outlined two basic business development strategies in its new medium-term management plan, DIC111: "Value Transformation" and "New Pillar Creation." In line with the strategy of Value Transformation, the Group will advance qualitative reforms in existing core businesses by shifting to businesses with differentiated high-value-added products and with more of a focus on social value. New Pillar Creation emphasizes creating new businesses by identifying areas where ESH-related issues and social changes intersect with the DIC Group's competencies. This strategy continues to guide a number of key initiatives, several of which are described on page 135.

## Designing a Framework for New Pillar Creation

The DIC Group's success in providing new products and services that benefit society and creating new businesses will depend on how well it understands the sources of its competitiveness and whether it can swiftly and accurately identify social imperatives and needs. The ability to take responsibility for seeing the development process through to commercialization is particularly crucial. Accordingly, rather than depending on a conventional marketing-led approach to development, the Group has designed a framework centered on a deployment team that is charged with facilitating the design of new businesses by overseeing everything from planning and development through to production and sales, thereby ensuring that efforts to create new businesses optimize overall capabilities and are strategically effective.

**Priority Areas of the New Business Development Headquarters**

① Electronics
② Automotive
③ Next-Generation Packaging
④ Healthcare
(For details, see page 13.)

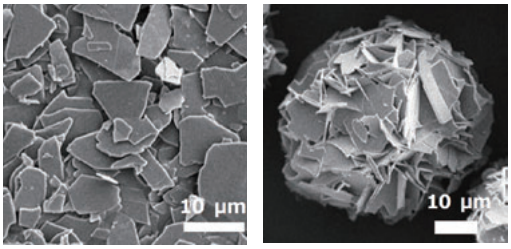
Having established the New Business Development Headquarters to serve as the deployment team and identified four segments, the DIC Group will leverage its ingenuity to advance the creation of new products that are useful to society and next-generation businesses with the potential to become mainstays.

The DIC Group will also bring together people from technical and sales backgrounds with detailed understanding of the new segments and people with experience in related industries with the aim of enhancing expertise and communications capabilities, as well as make active use of open innovation—including through participation in initiatives involving collaboration between industrial concerns and academia and by capitalizing on external resources—to promote the timely development and commercialization of products that benefit society.

## Examples of New Pillar Creation

### 1 Leveraging Compounding Technologies to Develop Heat Management Materials: Contributing to Peace of Mind and Comfort in the Electronics Field

While demand for ever-smaller and faster digital equipment continues to make lives more convenient, heat management is increasingly critical to ensure the safety of such devices. DIC is promoting the development of thermally conductive fillers that quickly diffuse and dissipate heat by applying a proprietary technology that simplifies the synthesis of inorganic oxide single crystals, to improve the crystallinity of inorganic fillers, as well as to control their shape and size. When used in molded plastic items, the characteristic shape and high crystallinity of particles in these innovative fillers is expected to exhibit the high thermal conductivity inherent in crystals, further enhancing mechanical properties.



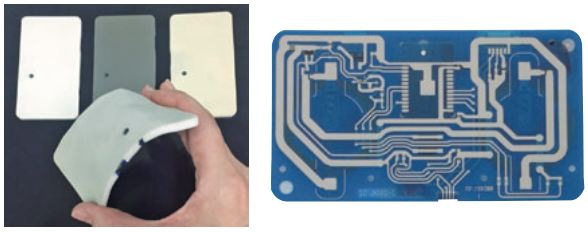
Newly developed specialized thermally conductive fillers

### 2 Applying Composite Technologies to the Development of Environmental Sensors: Using Digital Transformation to Create Comfortable Environments

Smart buildings, which make use of technologies that optimize office buildings' use of electric power, thereby contributing to decarbonization, and well buildings, which leverage technologies that improve the comfort and health of people are crucial to urban sustainability. DIC recently developed a sensor for detecting internal temperature, humidity and light intensity in commercial complexes, office buildings and other facilities and in fall 2018 began verification testing in collaboration with several other companies. Using DIC Group composite technologies enabled DIC to realize a groundbreaking wireless environmental sensor with a casing that is thin (5.0 mm), light (20 g), soft and flexible, making it easy to install and remove in any location. This flexible casing was made possible by the use of *SunTronic*™ conductive inks to print circuits on sensor substrates.

The use of DIC's *DAITAC*® removable adhesive tape for mounting the sensor facilitates installation and removal simply by sticking on and peeling off.

Going forward, the DIC Group aims to supply sensors not only as independent products but also as part of comprehensive packages that also include other necessary equipment and services, thereby reinforcing its ability to provide solutions that help respond to social imperatives.


Flexible printed substrate of DIC's new wireless environmental sensor

### 3 *TrinDy*™ Compounds for 3D Printers: Combining Technologies to Bolster Efficiency and Convenience in the Healthcare Field

With the number of elderly patients needing dental treatment rising, a shortage of dental technicians who construct custom-made dental prosthesis has become a critical concern. One focus of efforts to address this issue has been to improve the efficiency of processes used in prosthesis construction, which has led to the increasing popularity of prosthesis created using 3D printing.

Because 3D printers can faithfully transform scanned data into 3D shapes, they are used widely in areas where high-precision molding is required. Combining its proprietary polymer and compounding technologies, DIC succeeded in developing *TrinDy*™, a series of compounds for stereolithography — a form of 3D printing that cures with UV light—that achieve improved molding precision and strength. DIC is currently expanding its lineup to include products for implant surgical guides and dental impressions, among others, and is preparing to apply for approval under ISO 13485, the International Organization for Standardization's standard for quality management systems in the area of medical devices, in line with its goal of providing products that respond effectively to structural changes in society attributable to digitization.


3D-printed dental prosthesis made with *TrinDy*™

## Encouraging Familiarity with DIC Group Materials

The DIC Group participates in a variety of major trade shows every year with the aim of encouraging familiarity with DIC Group products and development efforts. In fiscal year 2018, the Group introduced materials that will contribute to a stress-free digital society at FINETECH JAPAN (Makuhari, Chiba Prefecture), the JPCA Show (Tokyo Big Sight) and Chemical Materials Japan (Yokohama, Kanagawa Prefecture), materials relevant to the issue of marine plastics at Tokyo Pack 2018 (Tokyo Big Sight) and health- and safety-related products at FOOD TABLE in Japan 2018 (Makuhari, Chiba Prefecture). Overseas, the Group exhibited plastic materials that help reduce the weight of vehicles at PLASTINDIA 2018 (Gandhinagar, Gujarat) and CHINAPLAS 2018 (Shanghai) and took part in a variety of segment-specific events, including Paint India 2018 (Mumbai), Security Printers 2018 (Dublin, Ireland) and in-Cosmetics Global 2018 (Amsterdam), to promote dialogue with a wide range of stakeholders.

In fiscal year 2019, the DIC Group will again take part in key trade shows to introduce Group products, development efforts and core technologies and hear the views of stakeholders, with the aim of realizing distinctively DIC materials that resolve challenges and are useful to society.

FINETECH JAPAN booth

## VOICE We are working to create next-generation businesses that will ensure a sustainable future for everyone.

In formulating our new medium-term management plan, DIC111, we held extensive discussions on how to best incorporate sustainability, represented by the SDGs, into the creation of next-generation businesses. One conclusion this process yielded was that there was a need for another scale—namely, sustainability indicators—for assessing businesses. That prompted us to revisit the question of who "sustainability" is for.

Our goal is not to promote sustainability exclusively for customers, nor is it only a way for us to fulfill our responsibility as a corporate citizen. Rather, we must seek to ensure a sustainable future for everyone—the DIC Group, including the employees engaged in production, the customers who use our products, and also society, to which our products ultimately contribute. This belief will continue to guide our efforts to create next-generation businesses.

Manager, New Business Development Headquarters, DIC Corporation **Nobuo Kobayashi**

# New Technology Development and Value Creation

SDGs Goals 9 and 12

## Proposing Solutions that Leverage Elemental Technologies

### Goals and Achievements of Major Initiatives

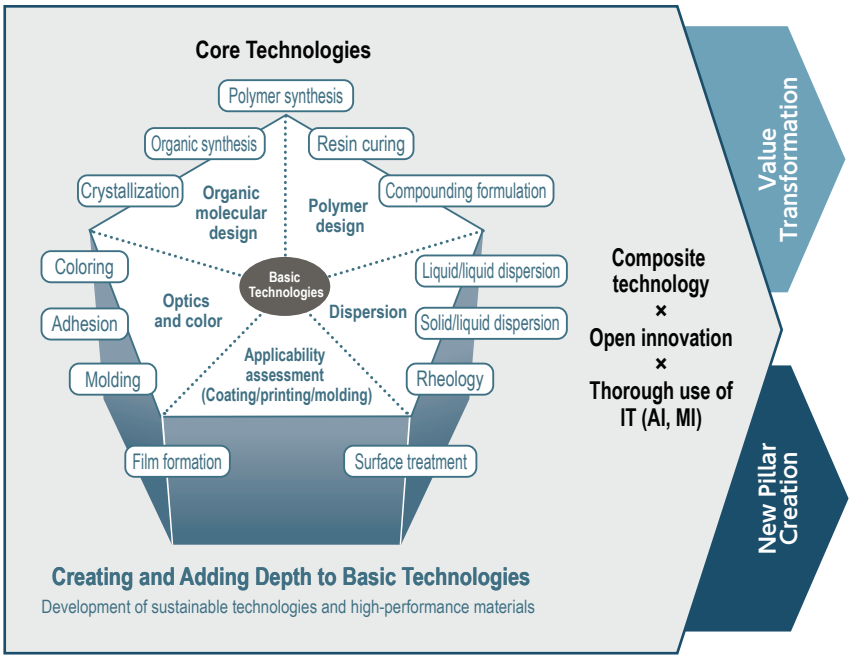
Evaluations are based on self-evaluations of current progress. Key: ★★★ = Excellent; ★★ = Satisfactory; ★ = Still needs work

| Objectives of initiatives | Goals for fiscal year 2018 | Achievements in fiscal year 2018 | Evaluation | Goals for fiscal year 2019 |
|---|---|---|---|---|
| Enhance ability to develop products and technologies that facilitate contribution to a sustainable society. | • Promote collaboration among DIC Group technical departments.<br>• Strengthen global technological development.<br>• Make use of open innovation and AI to hasten R&D. | • The Pigment Technical Center Asia Pacific was established in Indonesia, completing a network of facilities that collaborate to promote R&D.<br>• The effective use of AI helped accelerate the development of resin for thick-layer resists and other new products. | ★★ | • Accelerate collaboration among global technology bases in the development of strategic products and new technologies.<br>• Make use of compounding technologies, open innovation and AI to hasten the development of technologies that create added value. |
| Promote the development of environment-friendly products and services. | Accelerate efforts to develop low-carbon and other products that reduce negative impact on the environment. | • Efforts led to the expansion of DIC's lineup of biomass-derived gravure inks, packaging materials and other products.<br>• Environment-friendly products accounted for 57.0% of overall product sales. | ★★ | • Accelerate efforts to develop products that contribute to sustainability. |

## Achieving Sustainable Growth

With the aim of achieving its Color & Comfort by Chemistry management vision, the DIC Group is leveraging its basic technologies, including those in the areas of optics and color, organic molecular design, polymer design and dispersion, as well as its core technologies in such areas as synthesis, compounding and formulation, and surface treatment, to develop high-value-added products that contribute to a sustainable society. The Group is also building a portfolio of next-generation products and new technologies by integrating technological resources originating across the Group, as well as actively promoting open innovation, to drive sustainable growth.

### Development of New Technologies, Products and Solutions to Support Business Portfolio Transformation




| Segment | Target |
|---|---|
| Packaging & Graphic | Next-generation packaging inks and coatings, functional packaging adhesives, industrial-use jet inks, others |
| Color & Display | Pigments for color filters, pigments for cosmetics, effect pigments, natural colorants, LC materials, next-generation display materials, others |
| Functional Products | Sustainable polymers, environment-friendly PPS compounds for automotive components, high-performance industrial adhesive tapes, others |

| Business Area | Target |
|---|---|
| Electronics | Technologies and functional materials that support the spread of digitization |
| Automotive | Technologies and functional materials that underpin efforts to transform the automotive industry |
| Next-Generation Packaging | Packaging materials that help reduce food loss and support sustainability |
| Healthcare | Microorganism and cell culture technologies with applications extending from food safety to advanced medical care |

## Specific Initiatives and Achievements

The DIC Group is promoting the development and use of clean technologies. The Company is encouraging a shift toward materials with reduced environmental impact—notably energy-saving, water-based and solvent-free materials, as well as materials for the electronics, automotive, packaging and other industries—that improve the environmental performance of the products in which they are used, which it has positioned as environment-friendly products.

### *Products for Use in Electronics Equipment*

In products for LCDs, the DIC Group is working to enhance the luminous intensity of its pigments for color filters. The Group is also promoting the development of a highly responsive monomer that shortens production processes for polymer sustained alignment (PSA) LCs; nanophase-separated (NPS) LCs, which are effective in improving display response speeds; and LCs that spontaneously adopt homeotropic alignment, eliminating the need for a polyimide alignment layer. In the area of double-sided industrial adhesive tapes, a new tape that can be pulled off surfaces, thereby facilitating dismantling, continued to earn high marks for use in the securing of components for large displays for both its outstanding adhesion and ease of removal. In next-generation display materials, DIC continued to promote development of inks for use in the production of inkjet-printed quantum dot color filters (QDCFs) for displays in collaboration with Nanosys, Inc., of the United States. In products for use in electronics materials, the Group developed an active ester curing agent for use in semiconductor encapsulation materials and a resin for thick-layer resists for semiconductor packages, both of which boast outstanding heat resistance. The resin for thick-layer resists boasts a rigid skeleton that leverages DIC's proprietary polymer design technologies and AI to realize both high heat resistance and flexibility. In products for printed electronics–related applications, the Group is focusing on the development of highly electroconductive silver inks and copper nanopastes, among others.

### *Products for Packaging & Graphics Applications*

In the area of gravure inks, the Group developed a biomass ink for laminated packaging applications, for which it obtained Biomass Mark certification from the Japan Organic Recycling Association. The Group also developed a Biomass Mark–certified packaging adhesive, further expanding its lineup of biomass products. In addition, the Group launched a number of new environment-friendly products, including a water-based water- and oil-resistant coating for the inner surfaces of paper and paperboard food packaging, a water-based flexo ink for high-resolution printing on boilable and retortable food packaging and high-sensitivity UV-curable inks for a variety of applications. In multilayer films, the Group continues to bolster its results in the markets for transparent and matte films for packaged bread products and easy-peel films for prepared foods sold at, for example, convenience stores. Overseas, the Sun Chemical Group is stepping up its efforts to develop recyclable packaging materials and brought a number of new products to market, and is working to expand its new series of water-based inks made with vegetable oil. The company also launched a line of pigmented inks for textile inkjet printing.

## A Global R&D Configuration that Underpins Product Development

The Technical Management Unit, R&D Management Unit and New Business Development Headquarters in Japan collaborate with the R&D components of DIC Group companies around the world. These include DIC Graphics; the Sun Chemical Group's research centers in the United States, the United Kingdom and Germany; and Qingdao DIC Finechemicals, which conducts comprehensive R&D tailored to market needs in the PRC. Since fiscal year 2014, the Group has also established printing inks technical centers, polymer technical centers, solid compound technical centers and pigment technical centers in the PRC and the Asia–Pacific region and the Fine Chemical Technical Center–Korea. In addition, an algae research center in the United States capitalizes on the Group's accumulated expertise as a producer of Spirulina to conduct comprehensive algae-related research, encompassing everything from cultivation through to practical application.

## Promoting Environment-Friendly Products

The DIC Group is committed to effective stewardship of the products it provides. (For details, please see pages 64, 105 and 113.) Conscious always of the importance of ensuring its products are environment-friendly, DIC promotes the development of products and new technologies that are useful to society and works to increase the weighting of environment-friendly products in its portfolio, by reducing the volume of hazardous substances it uses, focusing on products that are less hazardous and products that facilitate recycling, and realizing safer production processes that generate less waste and use less energy. The Group has established internal rules for designating products "environment-friendly" and works to increase the weighting of products that have earned this designation in their portfolio. In fiscal year 2018, environment-friendly products accounted for 57.0% of all products put out by DIC and subsidiary DIC Graphics. The Group also strives to maintain a solid grasp of laws and regulations in different countries and territories, and of trends in environmental measures—thereby ensuring its ability to design products that comply with diverse regulations governing the use of chemical substances in different markets—and conducts environmental assessments on a continuous basis.

For printing inks, adhesives and other products used in food packaging, which the Group supplies to customers around the world, the DIC Group has established a global product stewardship team. The team shares information on regulations and relevant topics from different markets, as well as promotes awareness thereof and provides education. Knowledge thus gained is incorporated into product design and used to produce compliance certificates across the supply chain, which are essential for customers worldwide.

### Evaluation Sheet for Environment-Friendly Products

| Department: | | Prepared by: | | Prepared on: | |
|---|---|---|---|---|---|
| Product to be Evaluated: | | | | | |
| Evaluation Item | Certifying Standards | Description | Average of f | Coefficient α | Subtotal α·f |
| Energy Consumption | Reduction of energy in production, transportation, etc. | | | | |
| Materials to be Used | Reduction of use of non-renewable materials, non-recyclable materials, etc. | | | | |
| Hazards | Product with lower toxicity, etc. | | | | |
| Amount of Waste Generated | Reduction of environmentally concerned substances, etc. | | | | |
| Remarks: | | | | | |
| | | Evaluator | | | |

DIC ˙n˙ro ˙uce ˙ a sys˙em ˝or ˙es˙gna˙˙ng env˙ronmen˙-˝r˙endly pro ˙uc˙s an ˙ uses a propr˙e˙ary sheet to evaluate products based on energy consumption, materials to be used, hazards and waste generated, as well as to conduct life cycle assessments.

### Introducing the DIC Sustainability Index

To ensure that stakeholders understand the true worth of DIC Group products and solutions that address social imperatives, in addition to being environment-friendly, the Group introduced a proprietary sustainability index. The Group aims to begin using the DIC Sustainability Index in fiscal year 2020.

### Products that Contribute to the Realization of Clean Technologies

The DIC Group develops materials that contribute to the realization of clean technologies designed to help resolve critical global environmental issues. Product divisions promote the development of clean technology–related products for individual target markets that leverage distinctive DIC capabilities. Overall annual sales of such products currently amount to approximately ¥164.4 billion.

The DIC Group is conscious of the need to promote the "3Rs" ("Reduce, Reuse, Recycle") for resources. The Group is working to help reduce materials used by its customers in such areas as plasticizers, adhesives and adhesive tapes, by making products thinner while maintaining strength. To promote recycling, the Group is developing and launching products with recyclable constituent substances and advancing businesses that encourage recycling. The Group is also taking active steps to help reduce waste plastic and marine plastics, recognizing these as challenges that, as a manufacturer of fine chemicals, it has a responsibility to address.

## Innovation through Compounding

Building on its fundamental pigment and resin dispersion and formulating technologies, realized through the production of printing inks, DIC has succeeded in combining materials with different properties and performance characteristics to develop groundbreaking products and create new value. Recent achievements in the area of PPS compounds include the development of new products for motor components and functional components used in electric vehicles (EVs), as well as the expansion of the DIC Group's lineup of highly heat-, cold- and impact-resistant; high-flow, impact- and cold-resistant and other grades for use in automotive components. In the area of innovative products, the Company commenced full-scale R&D in the area of compounds for use in stereolithography 3D printing and will also cultivate applications in such areas as dental and industrial equipment. The Group will continue to harness its distinctive compounding capabilities to transform its diverse technologies into competitive advantages with the aim of driving innovation.

## Protecting Intellectual Property

Recognizing intellectual property as crucial to competitiveness, the DIC Group vows to respect the intellectual property of other companies. At the same time, guided by an open/closed strategy the Group works to secure intellectual property rights for its own technologies and make use of "black boxing."

DIC's efforts to reinforce protection of its intellectual property are also attracting notice outside of the Company. For example, in fiscal year 2018 DIC was second in a ranking of companies in the chemicals industry in Japan in terms of patent assets owned conducted by an independent firm*. DIC registers an average of 400 new patents annually. While this is small compared to leading chemicals firms, the Company received a high score for the overall scale of its patent assets, reflecting the quality and high profile of the patents it holds. DIC will continue to actively protect its intellectual property portfolio with the aim of ensuring sustainable growth in the years ahead.

## VOICE We are promoting the development of waterborne polyurethane resins that will contribute to the success of the SDGs.

Amid rising environmental concerns, including climate change, and increasingly urgent social imperatives, companies today face an ever-more diverse array of challenges. DIC is working to develop products that take into account the global environment, ecosystems, socioeconomic systems and other factors, with the aim of contributing to sustainability. Our group focuses on polyurethane resins that impart both texture and durability to solvent-based artificial and synthetic leathers used in automotive interiors, furniture and clothing, which DIC supplies to customers around the world. We are also contributing to the circular economy by developing production processes that achieve significantly improved efficiency and adopting bio-derived raw materials.

Assistant Manager, Polymer Technical Group 6, Polymer Technical Division 2, DIC Corporation **Tomohiro Tetsui**

# Harmony with the Community and Social Contributions

## Adding Color & Comfort to Lifestyle

SDGs Goals 3 and 4

### Basic Approach to Social Contribution

Based on its Guidelines for Social Contribution Activities, established in fiscal year 2009, the DIC Group works to ensure harmony with local communities and individuals through activities aimed at building a strong relationship with society.

### The DIC Group's Guidelines for Social Contribution Activities

In line with its Color & Comfort by Chemistry management vision, the DIC Group will promote social contribution initiatives in three areas: Business activities, culture and education, and communities and society.

#### *Business activities*

The DIC Group will offer products and services that contribute to the development of a sustainable society and protection of the global environment from the viewpoint of "CSR through business activities."

#### *Culture and education*

The DIC Group will engage in activities that will contribute to the development and promotion of culture, the arts, science and education, including fostering next-generation human resources in areas such as the culture of color and chemistry.

#### *Communities and society*

The DIC Group will strive to coexist harmoniously with local communities to develop a relationship of mutual trust. Moreover, the Group will provide an environment that enables employees to engage in voluntary contribution activities in their respective local communities.

## Examples of Recent Initiatives

### *Publication of the* Guidebook for the Color Universal Design–Recommended Color Set

The DIC Group is actively involved in R&D in the area of color universal design (CUD), as well as in expanding public awareness and understanding of CUD's importance. In 2007, the Group, in cooperation with the Japan Paint Manufacturers Association, the Industrial Research Institute of Ishikawa and the Color Universal Design Organization, embarked on a project to create the *Color Universal Design–Recommended Color Set* under the supervision of the University of Tokyo. In developing the color set, the organizations conducted repeated verification tests using study participants with various types of color vision to adjust proposed colors, a process that facilitated the creation of a set of colors that are relatively easy to distinguish regardless of ability to see colors and can be reproduced using printing inks, coatings and digital imaging. Taking into account nearly a decade of use, in fiscal year 2018 the project members revised the set's color values to further enhance usability. The organizations also published a guidebook on effective use of the set and has worked to promote understanding and awareness.

From fiscal year 2015 through fiscal year 2017, the DIC Group participated in a joint industry–academic research project. During this period, Chiba University, the Central Research Laboratories and DIC Color Design, Inc., gave presentations on issues to consider in printing warnings and other important information on packaging and the results of joint research on the color appearance of red spot colors and on the use of color in an aging society at academic conferences in Japan and overseas.

In 2011, DIC began collaborating with the University of Tokyo and architect Kengo Kuma to develop new tactile paving that ensures high visibility for visually impaired individuals and is in harmony with the landscape. In fiscal year 2018, two new color options (a warm orangey yellow and a cool yellowish green) were introduced for the new paving.

In another key initiative in fiscal year 2018, DIC participated in the project to revise the Japan Industrial Standards (JIS) standard for safety colors (JIS Z 9103) with the goal of choosing colors that can be distinguished by people with diverse color vision.

Used increasingly in signage and infrastructure, CUD is playing an important role in everyday life. The broader application of CUD is also expected to increase safety and convenience for visitors to Japan and individuals with diverse color vision in advance of the Tokyo 2020 Olympic and Paralympic Games.

Looking ahead, DIC will continue to promote a variety of research initiatives that contribute to society and add color to lifestyles.

Press conference introducing the new tactile paving

**Comparison of Selected Colors**

| | 赤 Red | 黄赤 Yellow red | 黄 Yellow | 緑 Green | 青 Blue | 赤紫 Red purple |
|---|---|---|---|---|---|---|
| 旧 Before revision | 7.5R 4/15 | 2.5YR 6/14 | 2.5Y 8/14 | 10G 4/10 | 2.5PB 3.5/10 | 2.5RP 4/12 |
| 新 After revision | 8.75R 5/12 | 5YR 6.5/14 | 7.5Y 8/12 | 5G 5.5/10 | 2.5PB 4.5/10 | 10P 4/10 |

JIS safety colors before and after revision of the standard

## *Visiting Science Lab Program*

In line with the Japanese government's efforts to promote career education initiatives, as well as to help curb a decline in the popularity of science among children, DIC and DIC Graphics conduct visiting science labs at public elementary schools. Through this program, the Group seeks to spark children's interest in science and encourage them to realize the close relationship between science and their everyday lives. Since launching this initiative in 2010, the two companies have conducted visiting science labs at 38 elementary schools for approximately 3,000 sixth graders.

In fiscal year 2018, DIC and DIC Graphics also conducted visiting science labs as part of the Tohoku University Graduate School of Engineering's Science Campus project, at Tokyo University of the Arts and at DIC Family Day, an event held for the families of employees.

The visiting science labs program won silver in the 2018 Education Support Grand Prix, sponsored by Tokyo-based Leave a Nest Co., Ltd. The Education Support Grand Prix is the only awards program in Japan that evaluates and recognizes the educational initiatives of companies committed to helping children thrive from both a business and an educational perspective. The jury gave high marks to the program's use of know-how and technologies unique to the DIC Group to help participants experience the fun and fascination of science first hand, as well as to the fact that the program is offered not only at elementary schools near Group sites but also at universities and events for employees' families. DIC pledges to continue offering this program in the years ahead.

Visiting science lab

DIC's 2018 Education Support Grand Prix award certificate

### Comment

**As part of the Graduate School of Chemical Engineering, this is what I see as the importance of social contribution initiatives for children by B-to-B companies.**

In primary school science education, we believe it is important to create an environment that brings out and broadens children's interests. However, in today's information-intensive world people tend to be primarily interested in products and advertisements around them. I am on staff at the Graduate School of Chemical Engineering, but the students I teach seem to want to find jobs at companies that manufacture the final product they see around them—a sentiment shared by their parents. There are many B-to-B companies in areas such as materials and intermediate products manufacturing where students who have studied materials science can exercise their capabilities, but it can be difficult to understand what such companies do.

I see the Tohoku University Science Campus project as important for children because it helps communicate the importance of B-to-B companies to parents who participate with their children. This year's project once again confirmed this belief. It is my hope that DIC will continue to implement educational initiatives that encourage children's interest in science and contribute to the future of science and technology in Japan by ensuring the well-balanced allocation of human resources.

**Director, Center for Creative Engineering; Professor, Graduate School of Engineering, Tohoku University** **Hideyuki Aoki**

## *Initiatives Led by the Central Research Laboratories*

The Central Research Laboratories offer a variety of programs in such uniquely DIC topics as synthesis and chromatics to the students of local schools. In January 2018, students from Chiba Prefectural Sakura High School—a Super Science High School*—were given the opportunity to take part in a visiting lab lesson conducted by staff of the Central Research Laboratories on the theme of the role of intellectual property rights in corporate management. In August 2018, an experiment in pigment synthesis using Spirulina was conducted as part of a visiting lab lesson for primary school children in Chiba Prefecture as part of the Chiba Prefectural Education Agency's Dream Challenge Hands-On School. In addition to experiments, time was allocated for the young employees who served as instructors to talk about how they became interested in science and the challenges and rewards of research. At the same time as it helps children enjoy science, this program thus enables young employees to contribute to career education.


Lab lesson at a Super Science High School

* A designation awarded by Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) to senior high schools that implement curricula focused on the sciences and mathematics that goes beyond the Ministry's official guidelines with the aim of fostering the next generation of talented engineers and scientists.

### *Initiatives at the Kashima Plant*

In December 2018, the Kashima Plant collaborated with four companies based in the Kashima area of Ibaraki Prefecture to conduct a lab lesson at Seishin Gakuen High School, a Super Science High School. Titled “Learning about the colors around us,” the lab lesson explained, among others, the properties of color and light, products that capitalize on those properties, color names, primary colors and the synthesis of pigments. The lab lesson also included an experiment involving the extraction of a natural blue colorant from Spirulina. A total of 58 third-year junior high school students participated, asking enthusiastic color-related questions, including about how individual colors appear. The Kashima Plant will continue to explore ways to work with other nearby companies to conduct lab lessons in the future with the goal of communicating the fascination and appeal of science to junior and senior high school students with the hope that more may consider a future in science.

### *Kawamura Memorial DIC Museum of Art*

The Kawamura Memorial DIC Museum of Art, located adjacent to the Central Research Laboratories in Sakura, Chiba Prefecture, was established in 1990 to publicly exhibit works of art collected by DIC Corporation and its affiliates. In 2019, the museum is celebrating its 30th anniversary. As of December 2018, cumulative visitors to the museum had surpassed 2.45 million. DIC views operation of the museum, which assumed its current name in 2011, as a social contribution initiative that the DIC Group is uniquely positioned to undertake as an organization intrinsically involved in color.

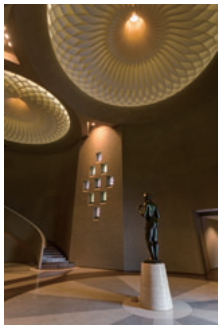
The museum’s extensive collection spans numerous genres, encompassing works by Rembrandt; Impressionists such as Monet and Renoir; modern European artists such as Picasso and Chagall; early modern, modern and postwar Japanese artists; and luminaries of late-20 century American art, including Mark Rothko, Cy Twombly and Frank Stella. In addition to a standing exhibit from its permanent collection of more than 1,000 major works, the museum stages special exhibitions several times a year that focus on pertinent literary works and other artifacts that evoke the cultural atmosphere at the time works were created to help visitors better understand the collection. The museum also offers free-of-charge guided tours every afternoon beginning at 2:00 pm.

Another appealing aspect of the museum is a 10-hectare garden alive with seasonal flowers and foliage that has been open to the public since the museum’s establishment. A total of 250 cherry trees—10 varieties in total—blossom every spring, while in summer wildflowers of all colors cover the site. Other highlights include the lotus pond at the back of the garden, which was expanded in 2015, and the wooded nature trail that traverses the site.

In a move aimed at promoting relations with the local community and fostering local cultural activities, the Kawamura Memorial DIC Museum of Art has established an annex gallery on the museum site that serves as an exhibition space for local amateur artists and is also made available to elementary and junior and senior high schools in the Sakura area for an exhibition of local students’ works.

The museum was also the first in Japan to introduce interactive methods originated by the Museum of Modern Art in New York for teaching children about art. To date, a total of 160 schools and more than 10,000 children have taken part in the museum’s educational programs, which are offered to entire classes led by elementary or junior high school teachers. This program has been certified every year since its establishment by the Association for Corporate Support for Arts under its This is MECENAT program.


Kawamura Memorial DIC Museum of Art


Museum entrance hall


Outdoor terrace

## *Sustainability Initiatives at Siam Chemical Industry*

In fiscal year 2018, DIC Group company Siam Chemical Industry Co., Ltd., was once again presented with a CSR-DIW Award by the Thai Ministry of Industry, the seventh consecutive year it has been so honored. The CSR-DIW Award program was established in 2008 with the goal of raising the global competitiveness of Thai companies. Awards are given annually to companies in recognition of CSR (sustainability) initiatives judged as exceptional from the perspective of seven core subjects defined in ISO 26000, the International Organization for Standardization's standard for social responsibility.

Siam Chemical Industry's CSR program in fiscal year 2018 included cosponsoring a volunteer initiative in Samut Sakhon Province to paint the exterior and replace the roof and toilets of a school for the children of migrant laborers from Myanmar that is located within a Buddhist temple. The initiative was organized under the auspices of Tokon International, an organization of painters that does volunteer work around the world. Siam Chemical Industry's support reflected its endorsement of the organization's desire to help create a positive educational environment for the school's pupils. Approximately 40 employees and family members took part and also organized a Japanese festival that included a rice cake–making event. The children responded enthusiastically to the festival and participating employees praised the initiative, with one commenting that taking part had given them a renewed sense of pride in their company.

Other sustainability initiatives by Siam Chemical Industry in fiscal year 2018 included the installation of new solar panels. As a result, solar power accounted for 14% of the electric power used by the company, lowering its annual $CO_2$ emissions by 500 metric tonnes. Siam Chemical Industry will continue to promote forward-looking efforts with the aim of contributing to the realization of a sustainable society.


Volunteer school painting initiative

## *Matching Gift Program*

DIC has a matching gift program whereby it matches the total amount collected through an annual year-end fundraising drive spearheaded by its employees' union. Funds raised through the 2018 drive and matching gift program were donated to 21 children's homes and facilities providing support for disabled individuals.

# Communication with Stakeholders

SDGs Goal 17

## Promoting Disclosure and Communication

### Promoting Disclosure and Communication

The DIC Group places a priority on communication with its stakeholders worldwide, as outlined in Article 7 of its Policy on Corporate Governance.

> **Article 7 (Ensuring Appropriate Information Disclosure and Transparency)**
>
> The Company shall ensure transparency and fairness; and in order to gain the correct understanding and trust from stakeholders, shall timely and appropriately disclose information relating to matters such as the DIC Group's management philosophy, management policies, business plans, financial condition and sustainability activities.

Guided by this policy, the DIC Group promotes communication with stakeholders through television advertisements, participation in exhibitions, websites and events. By communicating effectively with stakeholders, the Group strives to ensure an adequate understanding of stakeholder expectations and to reflect such expectations in its business activities. The Group is also expanding its awareness of the concept of stakeholder engagement, a key requirement under ISO 26000.

| | Ties with customers | Ties with shareholders and investors | Ties with business partners | Ties with society | Ties with employees | Ties with the media |
|---|---|---|---|---|---|---|
| **Basic approach** | Build trust ng relationships. By incorporating the demands of customers, seek to develop products that enhance customer satisfaction. | Ensure appropriate disclosure and build trusting relationships with shareholders and investors, encouraging both to evaluate DIC as an attractive investment. | Promote socially responsible procurement across the supply chain and build solid relationships that will facilitate sustainable procurement. | Operate in harmony with the community and build positive relationships with local residents that will underpin the long-term sustainability of operations. | Provide workplaces that are conducive to job satisfaction and enable all employees to fulfill their potential. Over the long term, achieve true diversity. | Deepen mutual understanding through effective publicity, advertising and other communications efforts. |
| **Communications tools** | ● Websites<br>● Product pamphlets<br>● Digital marketing<br>● Corporate profile DVDs<br>● DIC Report<br>● Corporate PR film<br>● News releases<br>● Television advertisements | ● Websites<br>● Press conferences<br>● Quarterly results announcements<br>● *Yuka Shoken Hokokusho* (financial disclosure document required of l sted companies in Japan)<br>● Timely disclosure<br>● Notice of Convocat on of the Annual General Meeting of Shareholders<br>● Shareholder newsletters<br>● Corporate profile DVDs<br>● DIC Report<br>● News releases<br>● Television advertisements | ● DIC Group CSR Procurement Guidelines<br>● DIC Group Green Procurement Guidelines<br>● Supplier CSR se f-evaluation questionnaires<br>● Feedback sheets<br>● Conflict Minerals Reporting Template | ● Websites<br>● Site reports<br>● Corporate profile DVDs<br>● DIC Report<br>● News releases<br>● Television advertisements | ● *DIC Plaza* (in-house newsletter)<br>● Intranet<br>● *DIC Pocket Book* (in-house Group data file)<br>● DIC Report<br>● Corporate PR film<br>● News releases<br>● Television advertisements<br>● Global linkage<br>● Branding questionnaire | ● Press conferences<br>● Interviews with journalists<br>● DIC Report<br>● News releases<br>● Television advertisements |
| **Opportunities for communication** | ● Sales activities<br>● Participation in exhibitions | ● General shareholders' meetings<br>● Results presentations<br>● IR conferences<br>● IR meetings<br>● DIC IR Day | ● On-site inquiries | ● Production facility tours<br>● Participation in projects involving collaboration among industrial concerns, government bodies and academic institutions<br>● Participation in community events<br>● Environmental monitoring | ● Labor–management councils<br>● Results presentations for employees<br>● Presentations on the DIC Group Code of Business Conduct<br>● Sustainability presentations<br>● DIC Family Day<br>● Plant tours for employee families | ● Newspapers<br>● Economic publications<br>● Industry publications |

## Ties with Customers

Guided by the basic policy of its previous medium-term management plan, which emphasized the focused allocation of management resources in key business domains, in fiscal year 2018 the DIC Group took part in numerous trade shows in Japan and overseas. Such events provided valuable opportunities for the Group to communicate with its customers. In Japan, the Group participated in Chemical Materials Japan 2018 in May, where it displayed sheet-form passive heat storage material and other advanced technologies, and in Tokyo Pack 2018, held in October, where it exhibited a variety of products that demonstrate the value that the Group provides to its customers. These included a new water- and oil-resistant coating varnish for the interior surfaces of paper food packaging that was developed as a uniquely DIC solution to help address such key social imperatives as marine plastics. Overseas, the Group took part in Paint India 2018, one of India's largest exhibitions of coatings and related materials, in March, with the aim of strengthening its communication with customers in the rapidly growing Asian market.

In commemoration of its 110th anniversary, in February 2018 DIC welcomed a total of approximately 1,000 customers and suppliers to events in Tokyo, Nagoya and Osaka, reiterating its commitment to growing together with its customers. In April 2018, the Group established the DIC Packaging Solution Center, a facility for collaboration with customers in the development of packaging, primarily for food products and everyday commodities, from planning and design through to commercialization. The following month, DIC held an event at its corporate headquarters in Tokyo to mark the launch of the Asia Color Trend Book 2019–20 to unveil the latest edition of this unique publication and introduce initiatives that embody the Group's Color & Comfort brand slogan, while at the same time creating new value by providing an opportunity for interaction among people from various industries. On another front, DIC continued employing a dedicated system in operation since 2013 to measure the portion of sales accounted for by repeat customers, using this as an indicator to measure customer satisfaction, as well as to working to grasp and improve customer satisfaction.

CITE Japan

110th anniversary celebration

*Digital Marketing*

The DIC Group actively promotes digital marketing activities. In the past, communication with customers centered on sales visits and other face-to-face efforts. However, with the increasing dominance of electronic communications, including email, social media and websites, the focus for customers has rapidly shifted to these media. Accordingly, the DIC Group has introduced marketing automation designed to more effectively utilize electronic communications channels with the aim of responding swiftly to customer requests. The Group will continue working to enhance its communications with customers by ensuring its ability to address inquiries in a timely manner.

## Ties with Shareholders and Investors

The DIC Group has established a policy for promoting constructive dialogue with shareholders and strives to ensure fair, appropriate and timely disclosure and to communicate closely with shareholders and investors, as well as to raise awareness of its ESG initiatives. Views and concerns expressed are shared with management and incorporated into operations as appropriate.

In fiscal year 2018, the Group sought to enhance communication with the investment community in Japan by holding two results presentations for institutional investors and securities analysts, as well as by participating in investor relations (IR) conferences organized by securities companies and in various IR meetings. DIC also held DIC IR Day 2018 to encourage a deeper understanding of the business it expects to drive growth going forward. Overseas, the Group held IR meetings and participated in IR conferences organized by securities companies in North America, Europe and Asia to encourage familiarity with its business strategies. Active efforts to advance communication with overseas investors also included 140 one-on-one meetings conducted in person or by telephone.

To provide information to individual investors, the Group participated in six company presentations in Japan, which were attended by approximately 500 individuals, to further understanding of its business activities and ESG initiatives. The Group also continued to actively provide information for individual investors via the DIC global website, as well as through conventional mass media.


President and CEO Kaoru Ino speaks to analysts at DIC's fiscal year 2018 results announcement (February 2019)


DIC R Day

## Ties with Society

In addition to the business community, the DIC Group strives to communicate effectively with ordinary consumers, including students. As part of this effort, the Group deploys the *DIC Color Guide*® Event Pack, which originated with an employee proposal, across Japan. Used at site functions, local events and activities organized for children, this unique tool promotes communication with the communities in which the Group operates.

In April 2018, a press conference was held to announce a new JIS standard for safety colors and safety signs (JIS Z 9103), the outcome of a project to select new colors in which the DIC Group participated. JIS Z 9103 was originally established in 1953 and the colors specified by the standard are used broadly in information signs at public facilities and to indicate the severity level of disasters. This was the first revision in 13 years and was undertaken based on the findings of an extensive awareness survey with the aim of enhancing signage in advance of the Tokyo 2020 Olympic and Paralympic Games by creating color combinations that can be discerned by people with all types of color vision, in line with the principles of CUD. In June 2018, the new colors were adopted by Japan's Digital Signage Consortium.

DIC's original calendar for 2019, tiled "The World of Joseph Cornell," was honored with a silver award (category 1) in the 70th All Japan Calendar Competition, which is sponsored by the Japan Federation of Printing Industries and *Fuji Sankei Business-i*, a well-known Japanese business and finance publication. An annual event, the competition recognizes calendars produced by general for-profit organizations, as well as by publishers and printing companies, among others, in terms of printing technology, planning, design, functionality and creativity. DIC will continue working to plan, design and produce innovative original calendars that appeal to stakeholders.

Fiscal year 2018 highlights at the Kawamura Memorial DIC Museum of Art included "Bridget Riley—Paintings from the 1960s to the Present," the first major exhibition of works by Bridget Riley, an artist renowned for abstract paintings employing geometric patterns, in Japan in 38 years. The catalog for the exhibition was chosen to receive the 2018 Hiromu Hara Award, which recognizes excellence in book design and is conferred as part of the Tokyo Art Directors Club (ADC) Awards. The museum also held an exhibition titled "Language and Art: Takashi Hiraide and the Artists," in which poet Hiraide sought to shine a light on the unique language of artists by exhibiting a variety of unique published materials that came into being as a result of deep artist dialogue with renowned global artists.

In fiscal year 2016, DIC declared a new brand slogan, "Color & Comfort," and launched an ambitious branding program. In fiscal year 2018, the Company produced the third installment of its brand advertisement for television, *Sekai wo Iro de Kaeteiku* ("Changing the world through color"), as well as a 110the anniversary commemorative print advertisement and a series of print advertisements highlighting the Kawamura Memorial DIC Museum of Art. The Company also completed a revamping of its global website (produced in Japanese, English and Chinese) and enhanced multidevice compatibility. In fiscal year 2018, the website saw record-high use in terms of both sessions and visitors.

"Bridget Riley—Paintings from the 1960s to the Present"

賞状

DIC株式会社 殿

あなたがたの作品は一般社団法人
日本印刷産業連合会及び
フジサンケイ ビジネスアイ主催の
第七十回全国カレンダー展において
優れたものと認められたので
これを賞します

平成三十一年一月二十一日

一般社団法人 日本印刷産業連合会
会長 金子 眞吾
フジサンケイ ビジネスアイ
代表取締役社長 上坂 徹

Award certificate from the 70th All Japan Calendar Competition

### *Communication in the Field of Education*

In July 2018, the Central Research Laboratories sponsored a booth at the 8th Chiba Science School Festival, held at the Tsuda campus of the Chiba Institute of Technology. This event, which is sponsored by the Chiba Science School Net, seeks to support the scientific research efforts of senior high school students, as well as to encourage elementary and junior high school students to take a greater interest in science. The Central Research Laboratories' booth at the 2018 festival, the theme of which was "The Mysteries of Color," offered students the chance to conduct experiments in the extraction of a natural blue colorant from Spirulina. The response from participating children was enthusiastic, with many expressing surprise at the beautiful blue color that resulted from the filtration of dark green liquid. The festival welcomed more than 400 visitors, including children and their family members, who took part in a variety of experiments.

In August 2018, the DIC Group once again hosted the Chiba Prefectural Dream Challenge Hands-On School, a popular program for elementary school–age children organized by the prefecture's Board of Education, at the Central Research Laboratories' convention hall and the Kawamura Memorial DIC Museum of Art. The program invites children to visit companies and university research labs in Chiba to take part in experiments and tour facilities. The 2018 program welcomed 10 selected participants to conduct experiments in the extraction of colorants from Spirulina and paper chromatography using aqueous felt-tipped pens.

Prefectural Dream Challenge Hands-On School (Chiba Prefecture)

## Ties with Employees

The DIC Group promotes a variety of initiatives to facilitate active communication with its employees around the world.

### *Global Linkage*

As a means of communicating with its employees worldwide, DIC launched a global intranet, Global Linkage, and created a mechanism for promoting communication between top management and employees of the global DIC Group. In June 2018, the Company revamped the intranet's home page, with the aim of expanding use. The intranet enables employees around the world to obtain key information and documentation, including news releases published in the PRC and the Asia–Pacific region and by Sun Chemical, rules and guidelines, and standardized forms and other documents that support branding efforts, thereby facilitating effective communications.

### *Caravan*

The Sustainability Department and the Corporate Communications Department collaborated to stage a workshop, dubbed "Caravan," designed to encourage awareness of the DIC Group's sustainability and branding initiatives at the Tokyo Plant. The workshop, which included a variety of meaningful educational activities, featured an active exchange of views, with participants expressing an understanding of the importance of sustainability initiatives and a desire for an increased focus on internal communications within the DIC Group. Afterward, all participants were asked to participate in an in-house intranet system project, facilitating ongoing communication. In fiscal year 2019, we will expand implementation of this initiative to include sites in the PRC and the Asia–Pacific region.

*Family Day*

On August 22–23, 2018, DIC held the first Family Day at its corporate headquarters in Tokyo. The event welcomed a total of 204 sixth-grade or younger children of corporate headquarters' employees and family members. Children took part in science labs, which DIC conducts regularly at elementary schools as part of its sustainability program, and a greeting card–making workshop using the *DIC Color Guide*® Event Pack, after which they exchanged business cards with president and CEO Kaoru Ino and sat in on a teleconference with DIC Korea Corp. Feedback from participants was positive, with comments received including "I had fun in the science lab," "I really wish they could do the *DIC Color Guide*® event at my school, too," "The teleconference was interesting," "Lunch was tasty!" and "I felt power in Mr. Ino's handshake." Employee comments included "Family Day helped us communicate directly to our kids what kind of a company DIC is," "The event encouraged many of the children to take an interest in color and chemicals" and "It made me realize that it is important for children to see where their parents' work."

Family Day

*In-House Newsletter*

In March 2019, *DIC Plaza* won an overall award for seasonal publications in the Fiscal Year 2018 Keidanren In-House Newsletter Awards. *DIC Plaza* earned high marks for planning and content—including its concept, which aligns with management policies, the introduction of activities by employees of the global DIC Group to highlight themes such as diversity and sustainability, and the showcasing of Kaizen and other production initiatives—as well as for its attractive page layout. The Group's intranet is another way for DIC to share information on the activities of employees worldwide. In fiscal year 2018, more than 100 such items were posted on the intranet.


*DIC Plaza*

## Ties with the Media

DIC is reinforcing its publicity activities as a means of communicating with its many stakeholders, including its customers, shareholders, investors and local communities. This reflects its conviction that promoting active disclosure that facilitates objective media coverage is vital to securing stakeholders' understanding of the Group and its operations and promoting a sense of solidarity among employees. In fiscal year 2018, DIC put out more than 80 news releases regarding new products, capital investments, operating results and sustainability. By proposing and accepting interviews on key topics such as its efforts to protect its intellectual property rights, DIC also succeeded in bringing forward issues of concern not only to the Company but also to the chemicals industry as a whole.

| Press conferences held in fiscal year 2018 | Interviews with journalists in fiscal year 2018 |
|---|---|
| 82 | 92 |

## External Assessments

In fiscal year 2018, DIC was selected for inclusion in the Dow Jones Sustainability Indices Asia Pacific Index, a leading benchmark for sustainability initiatives in the Asia–Pacific region and part of the Dow Jones Sustainability Indices (DJSI), a global family of indices for socially responsible investment (SRI). This was the fourth consecutive year DIC has been selected for inclusion.

DIC was also selected as a constituent of the MSCI Japan ESG Select Leaders Index, an ESG investment index of leading Japanese companies, and of the MSCI Japan Empowering Women Index (WIN), both developed by U.S.-based MSCI Inc., for the second consecutive year. In fiscal year 2018, the Company was also selected for the first time for inclusion in the FTSE4Good Index, FTSE Blossom Japan Index and the S&P/JPX Carbon Efficient Index. As a result, the Company is now included in all four of the ESG investment indices targeting Japanese equities used by Japan's Government Pension Investment Fund (GPIF), which seeks stock indices comprising companies with outstanding ESG performances (MSCI Japan ESG Select Leaders Index, WIN, FTSE Blossom Japan Index and S&P/JPX Carbon Efficient Index).

ProNed Inc., which advises companies on ensuring effective corporate governance, ranked DIC's corporate governance program as Score 1 in fiscal year 2018, the top mark that it awards. With the aim of driving sustainable growth, the DIC Group also participates in a number of UNGC working groups (SRI/ESG, GC Internal Promotion, Supply Chain, Human Rights Due Diligence and Disaster Risk Reduction).

MEMBER OF

# Dow Jones Sustainability Indices

In Collaboration with RobecoSAM

MSCI

2018 Constituent
MSCI Japan ESG
Select Leaders Index

MSCI

2018 Constituent
MSCI Japan Empowering
Women Index (WIN)

FTSE4Good

FTSE Blossom Japan

Member of SNAM Sustainability Index 2019

# DIC Report 2019 and the GRI Standards

DIC Report 2019 was prepared in compliance with the GRI Standards' "Core" option.

| Standard | Disclosures | Page(s), etc. | Related information / Reasons for omission | G4 standard | ISO 26000 |
|---|---|---|---|---|---|
| **GRI 102:** | **General Disclosures 2016** | | | | |
| **1** | **Organizational profile** | | | | |
| 102-1 | Name or organization | 3 (The DIC Group: A Global Powerhouse) | | G4-3 | — |
| 102-2 | Activities, brands, products, and services | 15–16 (The DIC Group's Approach to Value Creation), 23 (Packaging & Graphic), 25 (Color & Display), 27 (Functional Products), 137 (New Technology Development and Value Creation) | | | — |
| 102-3 | Location of headquarters | 3 (The DIC Group: A Global Powerhouse) | | G4-5 | — |
| 102-4 | Location of operations | 3–4 (The DIC Group: A Global Powerhouse), 159 (Corporate Data) | | G4-6 | — |
| 102-5 | Ownership and legal form | 3 (The DIC Group: A Global Powerhouse) | | G4-7 | — |
| 102-6 | Location of operations | 15–16 (The DIC Group's Approach to Value Creation), 23 (Packaging & Graphic), 25 (Color & Display), 27 (Functional Products), 137–139 (New Technology Development and Value Creation) | | G4-8 | — |
| 102-7 | Scale of the organization | 3–4 (The DIC Group: A Global Powerhouse), 166 (Corporate Data), 2–4 of the Financial Section ("Management's Discussion and Analysis") | | G4-9 | — |
| 102-8 | Information on employees and other workers | 116 (Basic Personnel Statistics (DIC)) | | G4-10 | 6.4<br>6.4.3 |
| 102-9 | Supply chain | 131 (Sustainable Procurement) | | G4-12 | |
| 102-10 | Significant changes to the organization and its supply chain | 22 (Information on new organization), 24&26 (Information on new acquisitions) | | G4-13 | — |
| 102-11 | Precautionary principle or approach | 64–67 (Information on ESH management system ) | | G4-14 | 6.2 |
| 102-12 | External initiatives | 51–52 (Ensuring DIC Remains a Globally Trusted Corporate Citizen with a Proud Reputation), 148 (External Assessments) | | G4-15 | 6.2 |
| 102-13 | Membership of associations | UNGC, JCIA, Keidanren, Keizai Doyukai, Japan Printing Ink Makers Association | | G4-16 | 6.2 |
| **2** | **Strategy** | | | | |
| 102-14 | Statement from senior decision-maker | 7–12 (A Message from the President) | | G4-1 | 6.2 |
| 102-15 | Key impacts, risks, and opportunities | 44–47 (Risk Management), 50–52 (Overview of Sustainability) | 23 (Packaging & Graphic), 25 (Color & Display), 27 (Functional Products) | G4-2 | 6.2 |
| **3** | **Ethics and integrity** | | | | |
| 102-16 | Values, principles, standards, and norms of behavior | 1 (The DIC WAY), 54 (The DIC Group Code of Business Conduct) | | G4-56 | — |
| 102-17 | Mechanisms for advice and concern about ethics | 55 (Establishing and Operating a Whistle-Blowing System) | | G4-57, G4-58 | — |
| **4** | **Governance** | | | | |
| 102-18 | Governance structure | 39–40 (Corporate Governance), 48–49 (Directors, Audit & Supervisory Board Members and Executive Officers), 51 (System for Promoting Sustainability Initiatives) | | G4-34 | 6.2 |
| 102-19 | Delegating authority | 51 (System for Promoting Sustainability Initiatives) | | G4-35 | — |
| 102-20 | Executive-level responsibility for economic, environmental, and social topics | 51 (System for Promoting Sustainability Initiatives) | | G4-36 | — |
| 102-21 | Consulting stakeholders on economic, environmental, and social topics | | | G4-37 | 6.2 |
| 102-22 | Composition of the highest governance body and its committees | 39–40 (Corporate Governance), official corporate governance report | | G4-38 | 6.2 |
| 102-23 | Chair of the highest governing body | 39–40 (Corporate Governance), official corporate governance report | | G4-39 | 6.2 |
| 102-24 | Nominating and selecting the highest governance body | 39–40 (Corporate Governance), official corporate governance report | | G4-40 | 6.2 |
| 102-25 | Conflicts of interest | *Yuka Shoken Hokokusho* | | G4-41 | 6.2 |
| 102-26 | Role of highest governance body in setting purpose, values, and strategy | 39–40 (Corporate Governance), 51 (System for Promoting Sustainability Initiatives) | | G4-42 | — |
| 102-27 | Collective knowledge of highest governing body | 39–40 (Corporate Governance), 51 (System for Promoting Sustainability Initiatives) | | G4-43 | — |
| 102-28 | Evaluating the highest governing body's performance | | | G4-44 | 6.2 |
| 102-29 | Identifying and managing economic, environmental, and social impacts | 44–47 (Risk Management), 50–51 (Sustainability initiatives) | | G4-45 | 6.2 |
| 102-30 | Effectiveness of risk management processes | 44–47 (Risk Management), 50–51 (Sustainability initiatives) | | G4-46 | — |
| 102-31 | Review of economic, environmental and social topics | 44–47 (Risk Management), 50–51 (Sustainability initiatives) | | G4-47 | 6.2 |
| 102-32 | Highest governance body's role in sustainability reporting | 44–47 (Risk Management), 50–51 (Sustainability initiatives) | | G4-48 | — |
| 102-33 | Communicating critical concerns | 44–47 (Risk Management), 51 (System for Promoting Sustainability Initiatives) | | G4-49 | 6.2 |
| 102-34 | Nature and total number of critical concerns | — | | G4-50 | — |
| 102-35 | Remuneration policies | 43 (Remuneration for Executives), 41–43 of the *Yuka Shoken Hokokusho* | | G4-51 | 6.2 |
| 102-36 | Process for determining remuneration | 43 (Remuneration for Executives), 41–43 of the *Yuka Shoken Hokokusho* | | G4-52 | — |
| 102-37 | Stakeholders' involvement in remuneration | — | | G4-53 | 6.2 |
| 102-38 | Annual total compensation ratio | — | 11 of the *Yuka Shoken Hokokusho* ("Employees") | G4-54 | — |
| 102-39 | Percentage increase in annual total compensation ratio | — | | G4-55 | — |

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|---|---|---|---|---|---|
| **5** | **Stakeholder engagement** | | | | |
| **102-40** | **List of stakeholder groups** | 144 (Communication with Stakeholders) | | **G4-24** | **6.2** |
| **102-41** | **Collective bargaining agreements** | Japan: 62.7% of employees belong to a labor union (for eligible employees, the rate is close to 100%)<br>Overseas: Employees have collective bargaining rights as allowed for by the laws and regulations of the country/territory in which they are employed (as of the end of fiscal year 2017) | | **G4-11** | **6.3.10<br>6.4<br>6.4.3<br>6.4.4<br>6.4.5** |
| **102-42** | **Identifying and selecting stakeholders** | 144 (Communication with Stakeholders) | | **G4-25** | **6.2** |
| **102-43** | **Approach to stakeholder engagement** | 144–149 (Communication with Stakeholders) | | **G4-26, G4-PR5** | **6.2<br>6.7<br>6.7.4<br>6.7.5<br>6.7.6<br>6.7.8<br>6.7.9** |
| **102-44** | **Key topics and concerns raised** | | 144–149 (Communication with Stakeholders) | **G4-27, G4-PR5** | **6.2** |
| **6** | **Reporting practice** | | | | |
| **102-45** | **Entities included in the consolidated financial statements** | 3 (The DIC Group: A Global Powerhouse), 159 (Corporate Data) | | **G4-17** | **6.2** |
| **102-46** | **Defining report content and topic boundaries** | 50–51 (Overview of Sustainability) | | **G4-18** | **—** |
| **102-47** | **List of material topics** | 53 (Materiality Analysis) | | **G4-19** | **—** |
| **102-48** | **Restatements of information** | NA | | **G4-22** | **—** |
| **102-49** | **Changes in reporting** | 53 (Materiality Analysis) (Review of materiality) | | **G4-23** | **—** |
| **102-50** | **Reporting period** | 2 (About this Report) | | **G4-28** | **—** |
| **102-51** | **Date of most recent report** | 2 (About this Report) | | **G4-29** | **—** |
| **102-52** | **Reporting cycle** | 2 (About this Report) | | **G4-30** | **—** |
| **102-53** | **Contact point for questions regarding the report** | Back cover | | **G4-31** | **—** |
| **102-54** | **Claims of reporting in accordance with the GRI standards** | 2 (About this Report) | | **G4-32-a** | **—** |
| **102-55** | **GRI content index** | GRI Standards (this table) | | **G4-32-b** | |
| **102-56** | **External assurance** | 64–67 (ESH (Management System)),<br>155 (Third-Party Verification) | | **G4-32-c, G4-33** | **7.5.3** |
| **103** | **Management approach** | | | | |
| **GRI 103:** | **General Disclosures 2016** | | | | |
| **103-1** | **Explanation of the material topic and its boundary** | 53 (Materiality Analysis) | | **G4-DMA-a, G4-20, G4-21** | **—** |
| **103-2** | **The management approach and its components** | DIC Group general materiality issues<br>• **Transformation to a sustainable business structure**<br>• **Efforts to strengthen product development capabilities and create new businesses**<br>• **Response to a circular economy**<br>134 (Business Models that Respond to Social Imperatives)<br>• **Product stewardship**<br>64 (ESH), 112 (Quality), 131 (Sustainable Procurement)<br>• **Response to climate change**<br>• **Reduction of environmental impact (emissions into the air and water)**<br>64 (ESH)<br>• **Response to changes in environmental laws and regulations**<br>56 (BCM and Crisis Management)<br>• **Promotion of sustainable procurement**<br>• **Strengthening of partnerships**<br>131 (Sustainable Procurement)<br>• **Governance at subsidiaries**<br>54 (Compliance)<br>• **Information security**<br>62 (Information security)<br>• **Ability to maximize capital efficiency**<br>• **Digital transformation**<br>• **Food security**<br>13 (New Medium-Term Management Plan: DIC111)<br>• **Communication with customers and markets**<br>144 (Communication with Stakeholders) | | **G4-DMA-b, G4-EN34, G4-LA16, G4-HR12, G4-SO11** | **—** |
| **103-3** | **Evaluation of the management approach** | As above, assessment results are indicated on various pages;<br>51 (System for Promoting Sustainability Initiatives) | | **G4-DMA-c** | |
| **200** | **Economic topics** | | | | |
| **GRI 201:** | **Economic Performance 2016** | | | | |
| **201-1** | **Direct economic value generated and distributed** | 3–4 (The DIC Group: A Global Powerhouse),<br>2–4 of the Financial Section (Management's Discussion and Analysis) | | **G4-EC1** | **6.8<br>6.8.3<br>6.8.7<br>6.8.9** |
| **201-2** | **Financial implications and other risks and opportunities due to climate change** | 92 (Support for the TCFD) | | **G4-EC2** | **6.5.5** |
| **201-3** | **Defined benefit plan obligations and other retirement plans** | 78 of the *Yuka Shoken Hokokusho* | | **G4-EC3** | **—** |
| **201-4** | **Financial assistance received from government** | — | | **G4-EC4** | **—** |
| **GRI 202:** | **Market Presence 2016** | | | | |
| **202-1** | **Ratios of standard entry level wage by gender compared to local minimum wage** | | 11 of the *Yuka Shoken Hokokusho* | **G4-EC5** | **6.4.4<br>6.8** |
| **202-2** | **Proportion of senior management hired from the local community** | | | **G4-EC6** | **6.8<br>6.8.5<br>6.8.7** |

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| **GRI 203:** | **Indirect economic impacts 2016** | | | | |
| 203-1 | Infrastructure investments and services supported | 140 (Harmony with the Community and Social Contributions) | Global corporate website (Home page > Sustainability > Harmony with the Community and Social Contributions | G4-EC7 | 6.3.9<br>6.8<br>6.8.3<br>6.8.4<br>6.8.5<br>6.8.6<br>6.8.7<br>6.8.9 |
| 203-2 | Significant indirect economic impacts | 140 (Harmony with the Community and Social Contributions) | Global corporate website (Home page > Sustainability > Harmony with the Community and Social Contributions | G4-EC8 | 6.3.9<br>6.6.6<br>6.6.7<br>6.7.8<br>6.8<br>6.8.5<br>6.8.6<br>6.8.7<br>6.8.9 |
| **GRI 204:** | **Procurement Practices** | | | | |
| 204-1 | Proportion of spending on local suppliers | — | | G4-EC9 | 6.6<br>6.6.8<br>6.8.5<br>6.8.7 |
| **GRI 205:** | **Anti-Corruption 2016** | | | | |
| 205-1 | Operations assessed for risks related to corruption | | 54–55 (Compliance) | G4-SO3 | 6.6<br>6.6.3 |
| 205-2 | Communication and training about anti-corruption policies and procedures | 54–55 (Compliance) | 132 (Encouraging CSR Procurement) | G4-SO4 | 6.6<br>6.6.3 |
| 205-3 | Confirmed incidents of corruption and actions taken | NA | 54 (Goals and Achievements of Major Achievements) | G4-SO5 | 6.6<br>6.6.3 |
| **GRI 206:** | **Anti-competitive Behavior 2016** | | | | |
| 206-1 | Legal actions for anti-competitive behavior, anti-trust, and monopoly practices | NA | 54 (Goals and Achievements of Major Achievements) | G4-SO7 | 6.6<br>6.6.5<br>6.6.7 |
| **300** | **Environmental topics** | | | | |
| **GRI 301:** | **Materials 2016** | | | | |
| 301-1 | Materials used by weight or volume | — | | G4-EN1 | 6.5.4 |
| 301-2 | Recycled input materials used | — | | G4-EN2 | 6.5.4 |
| 301-3 | Reclaimed products and their packaging materials | — | | G4-EN28 | 6.5.3<br>6.5.4<br>6.7.5 |
| **GRI 302:** | **Energy 2016** | | | | |
| 302-1 | Energy consumption within the organization | 81 (Energy Consumption and $CO_2$ Emissions by the DIC Group), 85 (Reduction in $CO_2$ Emissions by the DIC Group in Japan Attributable to the Use of Renewable Energy), 81 ($CO_2$ Emissions by the DIC Group in Japan (Including Scope 3)) | | G4-EN3 | 6.5.4 |
| 302-2 | Energy consumption outside the organization | — | | GA-EN4 | 6.5.4 |
| 302-3 | Energy intensity | 6 (Nonfinancial Information) | | G4-EN5 | 6.5.4 |
| 302-4 | Reduction of energy consumption | 82 (Information on energy-saving initiatives in Japan) | | G4-EN6 | 6.5.4<br>6.5.5 |
| 302-5 | Reductions in energy requirements of products and services | 82 (Key DIC Group Energy-Saving Initiatives in Japan in Fiscal Year 2018) | | G4-EN7 | 6.5.4<br>6.5.5 |
| **GRI 303:** | **Water 2016** | | | | |
| 303-1 | Water withdrawal by source | 99 (Managing Water Resources) | | G4-EN8 | 6.5.4 |
| 303-2 | Management of water discharge related impacts | 99 (Managing Water Resources) | | G4-EN9 | 6.5.4 |
| 303-3 | Water withdrawal | 99 (Managing Water Resources) | Regarding water withdrawal in water-stressed areas, initial water risks were assessed at 189 sites using a water risk assessment tool. | G4-EN10 | 6.5.4 |
| 303-4 | Water discharge | 99 (Managing Water Resources) | | | 6.5.4 |
| 303-5 | Water consumption | 100 (Initiatives in fiscal year 2018 (Scope of Reporting for the Withdrawal of Fresh Water and Discharge of Wastewater)) | | | 6.5.4 |
| **GRI 304:** | **Biodiversity** | | | | |
| 304-1 | Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas | — | | G4-EN11 | 6.5.6 |
| 304-2 | Significant impacts of activities, products, and services in biodiversity | — | | G4-EN12 | 6.5.6 |
| 304-3 | Habitats protected or restored | — | | G4-EN13 | 6.5.6 |
| 304-4 | IUCN Red List species and national conservation list species with habitats in areas affected by operations | — | | G4-EN14 | 6.5.6 |
| **GRI 305:** | **Emissions 2016** | | | | |
| 305-1 | Direct (Scope 1) GHG emissions | 77–95 (Initiatives Aimed at Preventing Global Warming) | | G4-EN15 | 6.5.5 |
| 305-2 | Energy indirect (Scope 2) GHG emissions | 81 ($CO_2$ Emissions by the DIC Group in Japan (Including Scope 3)) | | G4-EN16 | 6.5.5 |
| 305-3 | Other indirect (Scope 3) GHG emissions | 81 ($CO_2$ Emissions by the DIC Group in Japan (Including Scope 3)), 102 (Safety in Logistics) | | G4-EN17 | 6.5.5 |
| 305-4 | GHG emissions intensity | 6 (Nonfinancial information) | | G4-EN18 | 6.5.5 |
| 305-5 | Reduction of GHG emissions | 79–80 ($CO_2$ Emissions by Region) | | G4-EN19 | 6.5.5 |
| 305-6 | Emissions of ozone-depleting substances (ODS) | 87 (Protecting the Ozone Layer) | | G4-EN20 | 6.5.3<br>6.5.5 |
| 305-7 | Nitrogen oxides (NOx), sulfur oxides (SOx) and other significant air emissions | 93 (Preventing Environmental Pollution), 94 (Reducing SOx, NOx and COD) | | G4-EN21 | 6.5.3 |

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| **GRI 306:** | **Effluents and Waste 2016** | | | | |
| 306-1 | Water discharge by quality and destination | 93 (Preventing Environmental Pollution), 98 (Environmental Impact of the DIC Group's Operating Activities) | | G4-EN22 | 6.5.3 6.5.4 |
| 306-2 | Waste by type and disposal method | 97 (Deployment of Comprehensive Industrial Waste Management System) | | G4-EN23 | 6.5.3 |
| 306-3 | Significant spills | NA | | G4-EN24 | 6.5.3 |
| 306-4 | Transport of hazardous waste | NA | | G4-EN25 | 6.5.3 |
| 306-5 | Water bodies affected by water discharges and/or runoff | — | 99 (Managing Water Resources) | G4-EN26 | 6.5.3 6.5.4 6.5.6 |
| **GRI 307:** | **Environmental Compliance 2016** | | | | |
| 307-1 | Non-compliance with environmental laws and regulations | 68 (ESH Auditing) | | G4-EN29 | 4.6 |
| **GRI 308:** | **Supplier Environmental Assessment 2016** | | | | |
| 308-1 | New suppliers that were screened using environmental criteria | — | 131 (Sustainable Procurement) | G4-EN32 | 6.3.5 6.6.6 7.3.1 |
| 308-2 | Negative environmental impacts in the supply chain and actions taken | 131 (Sustainable Procurement) | Disclosure regarding the number of suppliers and specific negative impacts is protected by confidentiality agreements. | G4-EN33 | 6.3.5 6.6.6 7.3.1 |
| **400** | **Social topics** | | | | |
| **GRI 401:** | **Employment 2016** | | | | |
| 401-1 | New employee hires and employee turnover | 116 (Basic Personnel Statistics) | 119 (Hiring Diverse Human Resources) | G4-LA1 | 6.4 6.4.3 |
| 401-2 | Benefits provided to full-time employees that are not provided to temporary or part-time employees | | 115 (Human Resources Management) | G4-LA2 | 6.4 6.4.3 6.4.4 |
| 401-3 | Parental leave | 124 (Work and Childcare Balance Support Programs) | | G4-LA3 | 6.4 6.4.3 |
| **GRI 402:** | **Labor/Management Relations 2016** | | | | |
| 402-1 | Minimum notice periods regarding operational changes | A minimum notice period is provided as specified in labor agreements. | | G4-LA4 | 6.4 6.4.3 6.4.4 6.4.5 |
| **GRI 403:** | **Occupational Health and Safety 2016** | | | | |
| 403-1 | Occupational health and safety management system | 64–68 (Management System), 69 (Occupational Safety and Health) | | G4-LA5 | 6.4 6.4.6 |
| 403-2 | Hazard identification, risk assessment, and incident investigation | 64–68 (Management System), 69–76 (Occupational Safety and Health) | | G4-LA6 | 6.4 6.4.6 |
| 403-3 | Occupational health services | 70 (Making Regional Data Visible through Monthly Reports), 70 (Reducing Risks), 71 (Kiken Yochi Training (KYT)), 74 (Safe Corporate Climate Cultivation Working Groups) | | G4-LA7 | 6.4 6.4.6 6.8 6.8.3 6.8.4 6.8.8 |
| 403-4 | Worker participation, consultation, and communication on occupational health and safety | 71 (Promoting E-Learning–Based Training for Employees, Promoting Hands-On Safety Training) | | G4-LA8 | 6.4 6.4.6 |
| 403-5 | Worker training on occupational health and safety | 71 (Kiken Yochi Training (KYT)) | | | 6.4 6.4.6 |
| 403-6 | Promotion of worker health | 75 (Occupational Health) | | | 6.4 6.4.6 |
| 403-7 | Prevention and mitigation of occupational health and safety impacts directly linked by business relationships | 70 (Reducing Risks) | | | 6.4 6.4.6 |
| 403-8 | Workers covered by an occupational health and safety management system | 64–68 (Management System), 69–76 (Occupational Safety and Health) | | | 6.4 6.4.6 |
| 403-9 | Worker-related injuries | 74 (Status of Occupational Accidents), 75 (Disaster Prevention), 70 (Reducing Risks) | | | 6.4 6.4.6 |
| 403-10 | Work-related ill health | — | | G4-LA8 | 6.4 6.4.6 |
| **GRI 404:** | **Training and Education 2016** | | | | |
| 404-1 | Average hours of training per year per employee | — | 127 (DIC Training Programs) | G4-LA9 | 6.4 6.4.7 |
| 404-2 | Programs for upgrading employee skills and transition assistance programs | 64 (Environment, Safety and Health (ESH)), 83 (Reducing Energy Consumption and Enhancing Product Quality through Kaizen Skill Improvement Training), 113 (Efforts to Enhance Product Quality–Related Educational Initiatives), 116–117 (Human Resources Management) | | G4-LA10 | 6.4 6.4.7 6.8.5 |
| 404-3 | Percentage of employee receiving regular performance and career development reviews | 126 (Securing and Fostering Human Resources) (All DIC employees, regardless of gender, job or rank, receive performance and career development reviews twice annually.) | | G4-LA11 | 6.4 6.4.7 |
| **GRI 405:** | **Diversity and Equal Opportunity 2016** | | | | |
| 405-1 | Diversity of governance bodies and employees | 119 (Diversity Promotion and Work Style Reform), 13 (New Medium-Term Management Plan: DIC111) | 48–49 (Directors, Audi & Supervisory Board Members and Executive Officers), 122 (Advancing the Employment of Individuals with Disabilities, Reemployment after Retirement and Support for Retirement Planning), 127 (Global Talent Development) | G4-LA12 | 6.3.7 6.3.10 6.4 6.4.3 |
| 405-2 | Ratio of basic salary and remuneration of women to men | — | | G4-LA13 | 6.3.7 6.3.10 6.4 6.4.3 6.4.4 |
| **GRI 406:** | **Non-discrimination 2016** | | | | |
| 406-1 | Incidents of discrimination and corrective actions taken | NA | | G4-HR3 | 6.3 6.3.6 6.3.7 6.3.10 6.4.3 |
| **GRI 407:** | **Freedom of Association and Collective Bargaining 2016** | | | | |
| 407-1 | Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk | 118 (Due Diligence Initiatives to Address Principal Human Rights Challenges) | 51 (Ensuring DIC Remains a Globally Trusted Corporate Citizen with a Proud Reputation), 131 (Sustainable Procurement) | G4-HR4 | 6.3 6.3.3 6.3.4 6.3.5 6.3.8 6.3.10 6.4.3 6.4.5 |

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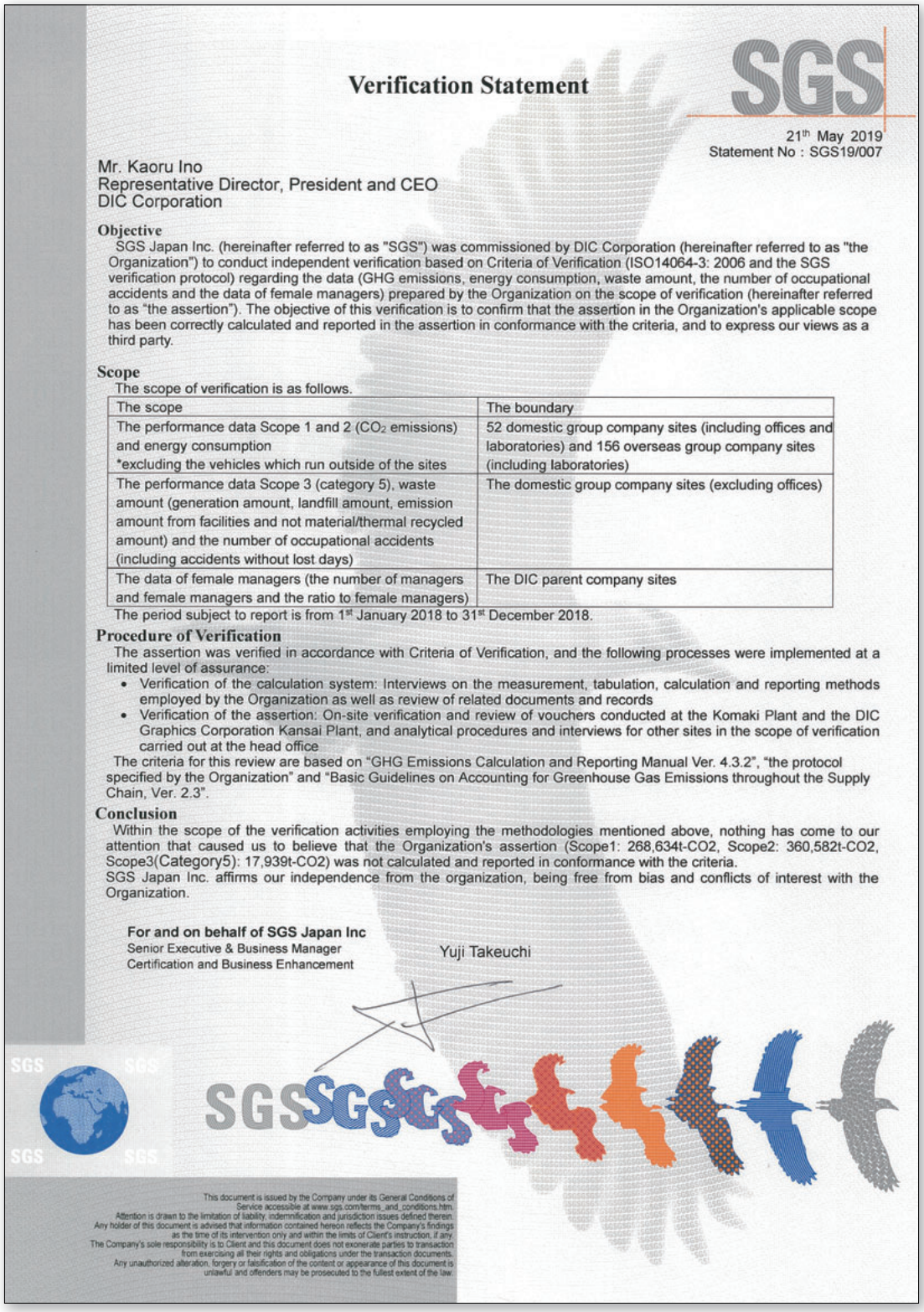
| **GRI 408:** | **Child Labor 2016** | | | | |
| 408-1 | Operations and suppliers at significant risk for incidents of child labor | 118 (Human Resources Management) | 131 (Sustainable Procurement) | G4-HR5 | 6.3<br>6.3.3<br>6.3.4<br>6.3.5<br>6.3.7<br>6.3.10 |
| **GRI 409:** | **Forced or Compulsory Labor 2016** | | | | |
| 409-1 | Operations and suppliers at significant risk for incidents of forced or compulsory labor | 118 (Human Resources Management) | 131 (Sustainable Procurement) | G4-HR6 | 6.3<br>6.3.3<br>6.3.4<br>6.3.5<br>6.3.7<br>6.3.10 |
| **GRI 410:** | **Security Practices 2016** | | | | |
| 410-1 | Security personnel trained in human rights policies or procedures | | 118 (Human Resources Management) | G4-HR7 | 6.3<br>6.3.5<br>6.4.3<br>6.6.6 |
| **GRI 411:** | **Rights of Indigenous Peoples** | | | | |
| 411-1 | Incidents of violations involving rights of indigenous peoples | NA | | G4-HR8 | 6.3<br>6.3.6<br>6.3.7<br>6.3.8<br>6.6.7 |
| **GRI 412:** | **Human Rights Assessment 2016** | | | | |
| 412-1 | Operations that have been subject to human rights reviews or impact assessments | 117 (Human Resources Management) | | G4-HR9 | 6.3<br>6.3.3<br>6.3.4<br>6.3.5 |
| 412-2 | Employee training on human rights policies or procedures | | 116 (Human Resources Management) | G4-HR2 | 6.3<br>6.3.5 |
| 412-3 | Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening | — | | G4-HR1 | 6.3<br>6.3.3<br>6.3.5<br>6.3.6 |
| **GRI 413:** | **Local Communities 2016** | | | | |
| 413-1 | Operations with local community engagement, impact assessments, and development programs | | 146 (Communication with Stakeholders) | G4-SO1 | 6.3.9<br>6.6.7<br>6.8<br>6.8.5<br>6.8.7 |
| 413-2 | Operations with significant actual and potential negative impacts on local communities | — | | G4-SO2 | 6.3.9<br>6.5.3<br>6.5.6<br>6.8.9 |
| **GRI 414:** | **Supplier Social Assessment 2016** | | | | |
| 414-1 | New suppliers that were screened using social criteria | | 132 (Sustainable Procurement) | G4LA14, G4-HR10, G4-SO9 | — |
| 414-2 | Negative social impacts in the supply chain and actions taken | 132 (Sustainable Procurement) | Disclosure regarding the number of suppliers and specific negative impacts is protected by confidentiality agreements. | G4-LA15, G4-HR11, G4-SO10 | — |
| **GRI 415:** | **Public Policy 2016** | | | | |
| 415-1 | Political contributions | — | | G4-SO6 | |
| **GRI 416:** | **Customer Hea th and Safety** | | | | |
| 416-1 | Assessment of the health and safety impacts of product and service categories | | 64 (Focus on Product Stewardship), 112 (Quality) | G4-PR1 | 6.3.9<br>6.6.6<br>6.7<br>6.7.4<br>6.7.5 |
| 416-2 | Incidents of non-compliance concerning the health and safety impacts of products and services | NA | 114 (Preventing the Recurrence of Problems) | G4-PR2 | 6.3.9<br>6.6.6<br>6.7<br>6.7.4<br>6.7.5 |
| **GRI 417:** | **Marketing and Labeling 2016** | | | | |
| 417-1 | Requirements for product and service information and labeling | 105 (Ensuring the Safety of Chemical Substances) | 113 (Initiatives Aimed at Increasing Customer Satisfaction) | G4-PR3 | 6.7<br>6.7.3<br>6.7.4<br>6.7.5<br>6.7.6<br>6.7.9 |
| 417-2 | Incidents of non-compliance concerning product and service information and labeling | NA | | G4-PR4 | 6.7<br>6.7.3<br>6.7.4<br>6.7.5<br>6.7.6<br>6.7.9 |
| 417-3 | Incidents of non-compliance concerning marketing communications | NA | | G4-PR7 | 6.7<br>6.7.3<br>6.7.6<br>6.7.9 |
| **GRI 418:** | **Customer Privacy 2016** | | | | |
| 418-1 | Substantial complaints concerning breaches of customer privacy and losses of customer data | NA | | G4-PR8 | 6.7<br>6.7.7 |
| **GRI 419:** | **Socioeconomic Compliance 2016** | | | | |
| 419-1 | Non-compliance with laws and regulations in the social and economic area | NA | | G4-SO8, G4-PR9 | 6.6<br>6.6.3<br>6.6.7<br>6.8.7 |

# Third-Party Verification



## Verification Statement

21th May 2019
Statement No : SGS19/007

Mr. Kaoru Ino
Representative Director, President and CEO
DIC Corporation

**Objective**

SGS Japan Inc. (hereinafter referred to as "SGS") was commissioned by DIC Corporation (hereinafter referred to as "the Organization") to conduct independent verification based on Criteria of Verification (ISO14064-3: 2006 and the SGS verification protocol) regarding the data (GHG emissions, energy consumption, waste amount, the number of occupational accidents and the data of female managers) prepared by the Organization on the scope of verification (hereinafter referred to as "the assertion"). The objective of this verification is to confirm that the assertion in the Organization's applicable scope has been correctly calculated and reported in the assertion in conformance with the criteria, and to express our views as a third party.

**Scope**

The scope of verification is as follows.

| The scope | The boundary |
|---|---|
| The performance data Scope 1 and 2 ($CO_2$ emissions) and energy consumption<br>*excluding the vehicles which run outside of the sites | 52 domestic group company sites (including offices and laboratories) and 156 overseas group company sites (including laboratories) |
| The performance data Scope 3 (category 5), waste amount (generation amount, landfill amount, emission amount from facilities and not material/thermal recycled amount) and the number of occupational accidents (including accidents without lost days) | The domestic group company sites (excluding offices) |
| The data of female managers (the number of managers and female managers and the ratio to female managers) | The DIC parent company sites |

The period subject to report is from 1st January 2018 to 31st December 2018.

**Procedure of Verification**

The assertion was verified in accordance with Criteria of Verification, and the following processes were implemented at a limited level of assurance:

- Verification of the calculation system: Interviews on the measurement, tabulation, calculation and reporting methods employed by the Organization as well as review of related documents and records
- Verification of the assertion: On-site verification and review of vouchers conducted at the Komaki Plant and the DIC Graphics Corporation Kansai Plant, and analytical procedures and interviews for other sites in the scope of verification carried out at the head office

The criteria for this review are based on "GHG Emissions Calculation and Reporting Manual Ver. 4.3.2", "the protocol specified by the Organization" and "Basic Guidelines on Accounting for Greenhouse Gas Emissions throughout the Supply Chain, Ver. 2.3".

**Conclusion**

Within the scope of the verification activities employing the methodologies mentioned above, nothing has come to our attention that caused us to believe that the Organization's assertion (Scope1: 268,634t-CO2, Scope2: 360,582t-CO2, Scope3(Category5): 17,939t-CO2) was not calculated and reported in conformance with the criteria.
SGS Japan Inc. affirms our independence from the organization, being free from bias and conflicts of interest with the Organization.

**For and on behalf of SGS Japan Inc**
Senior Executive & Business Manager
Certification and Business Enhancement
Yuji Takeuchi



The DIC Group commissioned SGS Japan Inc. to conduct third-party verification of its data for greenhouse gas emissions, discharge of industrial waste and number of occupational accidents (including number of accidents leading to workdays lost).

# Third-Party Opinion Regarding DIC Report 2019

**Counselor,**
**The Japan Research Institute, Limited**
**Eiichiro Adachi**

In his current capacity, Eiichiro Adachi conducts industry research and assesses corporate performance from the perspective of social responsibility. A member of the Market Evolution and Corporations in the 21st Century working group organized by the Keizai Doyukai (Japan Association of Corporate Executives), Mr. Adachi was involved in the preparation of The 15th Corporate White Paper on "'Market Evolution' and CSR Management: Toward Building Integrity and Creating Shareholder Value." From March 2005 to May 2009, he also served as a national expert within the Japanese delegation to the ISO 26000 working group. In March 2019, he was appointed a national expert within the Japanese delegation to the ISO/TC322, the ISO's technical committee for sustainable finance. Mr. Adachi is also known as the author of several books, including *Environmental Management: A Beginners' Guide, ESG Handbook for Investors and Businesses* and *The Business Person's Guide to the SDGs* (published in Japanese).

This third-party opinion reflects my view of the sustainability initiatives and information disclosure of the DIC Group, as understood from reading this report, from my perspective as an individual who provides corporate information to financial institutions to assist SRI. It is not intended as a comment on whether or not the information herein has been measured and calculated accurately to conform to commonly accepted standards for the preparation of environmental or other reports or a judgment on whether the report covers relevant important matters in full.

Once again this year, I had the honor of reviewing the DIC Report. The first thing I noticed in this year's report was the fact that the Company had reorganized its existing five segments into three new segments: Packaging & Graphic, Color & Display and Functional Products. The explanation given is that DIC had often heard from investors that they found it difficult to understand its corporate direction and for that reason has shifted the focus of its segments to value provided thereby making its message easy to understand. It is worth noting that this has also increased understanding from the perspective of risks and opportunities facing the DIC Group.

Another thing that caught my attention was the case study of *HYDRECT*, an exciting new product in the Packaging & Graphic segment, which is presented as a case study illustrating DIC's efforts to create a powerful business opportunity by quickly grasping global social changes pertaining to sustainability. The report also features a section on the development of naturally derived materials in the Color & Display segment. I found both of these examples of DIC's efforts to anticipate change and nurture businesses that will underpin our transition to a decarbonized world. Trends that pose particular threats to the chemicals industry, including rising concern regarding the issue of microplastics, were also not entirely ignored. It is fair to say that companies will increasingly be expected to make a comprehensive statement that outlines their awareness of key social imperatives and of the need for pertinent disclosure.

Any discussion of sustainability today must once again address the question of whether what needs to develop in a sustainable manner is companies or the earth and global society. In other words, which of these two is the subject of "sustainable development?" The recognition that healthy corporate activities are not possible without a healthy planet and a healthy society, and that continuing along the economic path we are currently on will make it impossible to achieve a healthy planet and a healthy society, are what led to the "Transforming Our World" subheading of the 2030 Agenda for Sustainable Development, which was adopted in September 2015.

The Paris Agreement is a part of this transformation. In June 2019, Japan announced a long-term growth strategy in line with the Paris Agreement that includes a goal for reducing its greenhouse gas emissions of 80% by 2050. Accordingly, in the future the DIC Group will face calls to achieve a breakthrough on a different level than the long-term target set forth in its DIC111 medium-term management plan, that is, a 30% reduction in $CO_2$ emissions from the fiscal year 2013 level by fiscal year 2030—in other words, disruptive reform that exceeds the constraints imposed by the concepts of "earth" and "society." For the DIC Group, as for other companies, this means shifting to new core products and revamping its business portfolio. The section titled "A Message from the President" contains the statement "This underscored our recognition of the urgency of transforming our business portfolio… and creating new businesses with the potential to become mainstays." This is a recognition that comes from the perspective not only of operating performance but also of sustainability. For this reason, I was impressed by the subsequent statement that DIC had as a result reviewed all businesses from the twin perspectives of "social value" and "economic value" and would advance business portfolio transformation in a manner that addresses key imperatives arising from social changes such as the spread of digitization and ESH-related issues, including those affecting the global environment and food supplies.

The DIC Group's proud history includes becoming the first company to build a commercial cultivation facility for Spirulina and commenced sales of the blue-green algae in 1978. More recently, the Group has promoted the creation of a proprietary sustainability index. Accordingly, it is my sincere hope that the Group's new directions and organization will yield a new corporate culture that is highly sensitive to the challenges facing earth and society and that this new culture will underpin many concrete achievements in the years ahead.

# DIC Group Milestones

## 111 Years of Achievement

### 1908
**Established as Kawamura Ink Manufactory**

Established by Kijuro Kawamura as Kawamura Ink Manufactory; adopts the dragon as its product trademark and begins manufacturing inks.

Dragon product trademark

DIC's founder, Kijuro Kawamura

### 1915
**Commences production of offset printing inks**

Becomes one of the first companies to conduct research in the area of offset printing inks and succeeds in producing a viable product in only one year.

### 1925
**Begins production of organic pigments**

Develops production method for organic pigments and begins production for its own use, the first step in its evolution as a fine chemicals manufacturer.

### 1940
**Commences production of water-based gravure inks**

Amid wartime restrictions on use of volatile oils, develops water-based gravure inks—one of several achievements that would later facilitate expansion into synthetic resins.

### 1952
**Makes full-scale entry into the synthetic resins business**

Establishes Japan Reichhold Chemicals Inc., then the second-largest joint venture with an overseas firm in the history of the Japanese chemicals industry, and makes a full-scale entry into the synthetic resins business.

Reichhold Chemicals' San Francisco plant

### 1957
**Enters the market for helmets and other molded plastic products**

Enters the plastic products business with the aim of becoming an integrated manufacturer with operations encompassing production of everything from plastic raw materials to finished products.

### 1962
**Changes Company name to Dainippon Ink and Chemicals**

Embarks on a new chapter in its history by absorbing Japan Reichhold Chemicals Inc., and changes Company name to Dainippon Ink and Chemicals Incorporated (DIC).

DIC's previous corporate symbol

### 1968
**Commences sales of the *DIC Color Guide*®**

Launches the *DIC Color Guide*®, which becomes the de facto standard for color selection in numerous industries, bolstering recognition of the DIC name.


*DIC Color Guide*®

**Promotes expansion of printing inks business** → **Diversifies operations by building on base in printing inks, organic pigments and synthetic resins** → **Actively introduces technologies from overseas and promotes further diversification**

## Sustainability Initiatives

### 1973
**Establishes the Environment and Safety Response Department**

Creates department under the direct supervision of DIC's president to oversee safety and environmental initiatives (today's Responsible Care Department); creates Environment and Safety Management Regulations and Interim Emergency Countermeasures Department and begins promoting decisive efforts, including the implementation of plant safety inspections.

### 1990
**Opens Kawamura Memorial Museum of Art**

Located in Sakura, Chiba Prefecture, adjacent to the Central Research Laboratories; established to exhibit works of art collected by DIC and DIC Group companies; now called the Kawamura Memorial DIC Museum of Art.

### 1995
**Declares intention to uphold the principles of Responsible Care**

Takes an active role in the Responsible Care movement since the start as one of 74 founding members of the Japan Responsible Care Council (JRCC); reinforces efforts to, among others, reduce negative environmental impact of operations and lower energy consumption.

Responsible Care®

### 2006
**Becomes signatory to the Responsible Care Global Charter**

Signs the CEO's Declaration of Support for the Responsible Care Global Charter, established by the International Council of Chemical Associations, as befits its status as a member of the global community of fine chemicals manufacturers.


Certification of DIC as signatory to the Responsible Care Global Charter

## 1970
### Enters the multilayered films business
Establishes Crown Zellerbach Packaging Materials Japan Co., Ltd., in a joint venture with Crown Zellerbach Corporation of the United States and Nippon Kakoh Seishi Co., Ltd., and enters the multilayered films business.

## 1973
### Enters the market for LCs
Develops revolutionary high-performance, long-lasting nematic LCs, commencing its evolution into one of the world's foremost manufacturers of LCs.

Nematic LCs

## 1986
### Acquires the graphic arts materials division of Sun Chemical Corporation of the United States
Becomes world's largest manufacturer of printing inks in terms of market share and a leading name in the graphic arts materials business.


Sun Chemical's headquarters

## 1999
### Succeeds in developing 100% soybean oil–based printing ink
Amid rising awareness of environmental issues, develops Japan's first organic solvent-free sheetfed offset ink.

## 1999
### Acquires Coates, the printing inks division of France's TOTALFINA
Establishes presence in India, Central and South America and elsewhere by acquiring the Coates Group from TOTALFINA S.A., France's largest oil company.

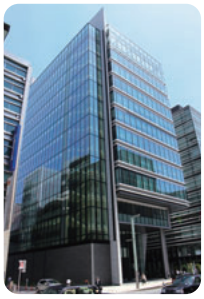
## 2008
### Changes Company name to DIC Corporation
Marks centennial anniversary by changing Company name to DIC Corporation and adopting a new corporate symbol.

DIC's new corporate symbol

## 2009
### Establishes DIC Graphics Corporation
In October 2009, establishes a joint venture with Dai Nippon Printing Co., Ltd., subsidiary The Inctec Inc. and integrates its domestic printing inks business with the printing inks business of The Inctec.

## 2010
### Develops groundbreaking series of green pigments for LCD color filters
Develops the *G58* series of green pigments for use in color filters for liquid crystal displays (LCDs), which deliver marked increases in brightness and contrast compared with previous products and contribute substantially to reduced energy consumption by LCDs.

## 2015
### Completes reconstruction of corporate headquarters in Nihonbashi
In May 2015, completes the reconstruction of its corporate headquarters—the DIC Building—in Nihonbashi, Tokyo, the role of which was expanded to include oversight of the global DIC Group.



DIC Building

## 2016
### Introduces branding program
Introduces new branding program based on the Group's "Color & Comfort" brand slogan, which sets forth three corporate values, and in October airs a new television advertisement.

Brand advertisement for television

## 2017
### Enters capital and business alliance with Taiyo Holdings
Concludes capital and business alliance with Taiyo Holdings Co., Ltd., one of the world's leading manufacturers of solder resist for PWBs.

## 2019
### Launches DIC111 medium-term management plan
Clarifies strategies for transforming the DIC Group's business portfolio, that is, for building a sophisticated portfolio focused on ESH-related issues and social changes by advancing qualitative reforms in existing core businesses and creating new businesses with the potential to become mainstays.

**Seeks to advance globalization of core businesses and diversify into new areas** → **Takes steps to advance environmental protection and expands global presence** → **Prepares for a new phase of growth**

## 2007
### Launches CSR program
Begins promoting CSR initiatives; identifies fulfilling its responsibilities as a member of society through its business activities and contributing to the evolution of society as the cornerstones of CSR.

## 2010
### Joins United Nations Global Compact
In December 2010, becomes a participant in the United Nations Global Compact (UNGC), with the aim of maintaining its reputation as a socially responsible corporate entity.

WE SUPPORT UN GLOBAL COMPACT

## 2014
### Changes designation to "sustainability"
Clarifies its overall policy of achieving sustainability in a manner that takes into account, among others, the environment, ecosystems and socioeconomic issues, and changes the designation used across its program from "CSR" to "sustainability."


In-house poster promoting sustainability initiatives

## 2015
### Selected for inclusion in the Dow Jones Sustainability Indices Asia Pacific Index
Included for the first time in the DJSI Asia Pacific Index, a global family of indices for socially responsible investing and a benchmark of global sustainability. As of 2018, has been included in the index for four consecutive years.

MEMBER OF
Dow Jones Sustainability Indices
In Collaboration with RobecoSAM

# Corporate Data

## Headquarters/Branches in Japan

### Corporate Headquarters

**Headquarters**
DIC Building, 7-20, Nihonbashi 3-chome,
Chuo-ku, Tokyo 103-8233, Japan
Tel: +81-3-6733-3000

### Branch Offices

**Osaka**
5-19, Kyutaro-machi 3-chome, Chuo-ku, Osaka 541-8525, Japan
Tel: +81-6-6252-6161 Fax: +81-6-6245-5239

**Nagoya**
7-15, Nishiki 3-chome, Naka-ku, Nagoya 460-0003, Japan
Tel: +81-52-951-9381 Fax: +81-52-962-3591

### Plants

**Tokyo**
35-58, Sakashita 3-chome, Itabashi-ku, Tokyo 174-8520, Japan
Tel: +81-3-3966-2111 Fax: +81-3-3965-4320

**Chiba**
12, Yawatakaigandori, Ichihara, Chiba 290-8585, Japan
Tel: +81-436-41-4141 Fax: +81-436-43-1059

**Hokuriku**
64-2, Minatomachi-So, Hakusan, Ishikawa 929-0296, Japan
Tel: +81-76-278-2332 Fax: +81-76-278-5354

**Sakai**
3, Takasago 1-chome, Takaishi, Osaka 592-0001, Japan
Tel: +81-72-268-3111 Fax: +81-72-268-1705

**Kashima**
18, Higashifukashiba, Kamisu, Ibaraki 314-0193, Japan
Tel: +81-299-93-8111 Fax: +81-299-92-6384

**Yokkaichi**
5, Kasumi 1-chome, Yokkaichi, Mie 510-0011, Japan
Tel: +81-59-364-1151 Fax: +81-59-364-1620

**Komaki**
151-1, Nagare, Shimozue, Komaki, Aichi 485-0825, Japan
Tel: +81-568-75-2751 Fax: +81-568-73-4120

**Saitama**
4472-1, Komuro, Ina machi, Kita-Adachi gun, Saitama
362-8577, Japan
Tel: +81-48-722-8211 Fax: +81-48-722-6087

**Tatebayashi**
6023, Tobukogyodanchi, Ohshima-cho
Tatebayashi, Gunma 374-0001, Japan
Tel: +81-276-77-2461 Fax: +81-276-77-2468

### Laboratory

**Central Research Laboratories**
631, Sakado, Sakura, Chiba 285-8668, Japan
Tel: +81-43-498-2121 Fax: +81-43-498-2229

### Art Museum

**Kawamura Memorial DIC Museum of Art**
631, Sakado, Sakura, Chiba 285-8505, Japan
Tel: + 81-50-5541-8600 (toll free in Japan)
Fax: +81-43-498-2139

(Info mation is as of March 31, 2019 )

## Principal Subsidiaries and Affiliates

### ■ Japan

Cast Film Japan Co., Ltd.
DC Katsuya Co., Ltd.
DIC Color Coatings, Inc.
DIC Color Design, Inc.
DIC Covestro Polymer Ltd.
DIC Decor, Inc.
DIC EP Corp.
DIC Estate Co., Ltd.
DIC Graphics Corporation
DIC Interior Co., Ltd.
DIC Kako, Inc.
DIC Kitanihon Polymer Co., Ltd.
DIC Kyushu Polymer Co., Ltd.
DIC Lifetec Co., Ltd.
DIC Machinery & Printer's Supplies, Inc.
DIC Material Inc.
DIC Plastics, Inc.
Hamamatsu DIC Co., Ltd.
Japan Formalin Company, Inc.
KJ Chemicals Corporation
Mizushima Kasozai Co., Ltd.
Nippon Epoxy Resin Manufacturing Co., Ltd.
Oxirane Chemical Corp.
Renaissance, Inc.
Seiko PMC Corporation
SUNDIC Inc.
Taiyo Holdings Co., Ltd.
Techno Science, Inc.
Topic Co., Ltd.
YD Plastics Co., Ltd.

### ■ Asia and Oceania (Excluding Japan)

Aekyung Chemical Co., Ltd.
Changzhou Huari New Material Co., Ltd.
DIC Alkylphenol Singapore Pte., Ltd.
DIC Asia Pacific Pte Ltd
DIC Australia Pty Ltd.
DIC (China) Co., Ltd.
DIC Colorants Taiwan Co., Ltd.
DIC Compounds (Malaysia) Sdn. Bhd.
DIC Epoxy (Malaysia) Sdn. Bhd.
DIC Fine Chemicals Private Limited
DIC Graphics (Guangzhou) Ltd.
DIC Graphics (Hong Kong) Ltd.
DIC Graphics (Thailand) Co., Ltd.
DIC Graphics Chia Lung Corp.
DIC (Guangzhou) Co., Ltd.
DIC India Ltd.
DIC Korea Corp.
DIC Lanka (Private) Ltd.
DIC (Malaysia) Sdn. Bhd.
DIC New Zealand Ltd.
DIC Pakistan Ltd.
DIC Philippines, Inc.
DIC (Shanghai) Co., Ltd.
DIC Synthetic Resins (Zhongshan) Co., Ltd.
DIC (Taiwan) Ltd.
DIC Trading (HK) Ltd.
DIC (Vietnam) Co., Ltd.
DIC Zhangjiagang Chemicals Co., Ltd.
Guangzhou Lidye Resin Co., Ltd.
Hainan DIC Microalgae Co., Ltd.
Kangnam Chemical Co., Ltd.
Lianyungang DIC Color Co., Ltd.
Lidye Chemical Co., Ltd.
Nantong DIC Color Co., Ltd.
Nantong Shan Kai Ming Ke Trading Co., Ltd
PT DIC ASTRA Chemicals
PT. DIC Graphics
P.T. Pardic Jaya Chemicals
Qingdao DIC Finechemicals Co., Ltd.
Qingdao DIC Liquid Crystal Co., Ltd.
Samling Housing Products Sdn. Bhd.
Seiko PMC (Shanghai) Commerce & Trading Corp.
Seiko PMC (Zhangjiagang) Corporation
Shanghai DIC Ink Co., Ltd.
Shanghai DIC Pressure-Sensitive Adhesive Materials Co., Ltd.
Shenzhen-DIC Co., Ltd.
Siam Chemical Industry Co., Ltd.
Sun Branding Solutions (India) Pvt. Ltd.
Sun Chemical Advanced Materials (Shanghai) Co., Ltd.
Sun Chemical Holding (Hong Kong) Ltd.
Sun Chemical Ink LLP
Sun Chemical Saudi Arabia Ltd.
Sun Chemical Trading (Shanghai) Co., Ltd.
Suqian Lintong Chemical Science Corp.
Suzhou Lintong New Materials Co., Ltd.
TOA-DIC Zhangjiagang Chemical Co., Ltd.
Total Acrylic Polymer Industry Corp.

### ■ Europe and Africa

Benda-Lutz Skawina Sp. z.o.o.
Benda-Lutz Volzhsky ooo
Benda-Lutz Werke GmbH
Coates Brothers (East Africa) Ltd.
Coates Brothers (West Africa) Ltd.
Coates Screen Inks GmbH
C.T. LAY S.R.L.
DIC Europe GmbH
DIC Holdings Austria GmbH
DIC Holdings B.V.
DIC Performance Resins GmbH
ECG Holdings Ltd.
Gibbon FineCal Ltd.
Glenside Properties Limited
Gwent Electronic Materials Ltd.
Hartman D.O.O.
Hartmann-Sun Chemical EOOD
Kingfisher Colours Ltd.
Lorilleux Maroc S.A.
Luminescence Holdings Ltd.
Parker Williams Design Ltd.
Sun Branding Solutions Ltd.
Sun Chemical A/S
Sun Chemical AB
Sun Chemical AG
Sun Chemical AG (S.A., Ltd.)
Sun Chemical B.V.
Sun Chemical d.o.o.
Sun Chemical for Graphic Arts S.A.E.
Sun Chemical GmbH
Sun Chemical Group GmbH
Sun Chemical Group S.p.A.
Sun Chemical Holding B.V.
Sun Chemical Inks Ltd.
Sun Chemical Inks A/S
Sun Chemical Lasfelde GmbH
Sun Chemical Ltd.
Sun Chemical N.V./S.A.
Sun Chemical Nyomdafestek Kereskedelmi Es Gyatro KFT
Sun Chemical Osterode Druckfarben GmbH
Sun Chemical Oy
Sun Chemical Pigments S.L.
Sun Chemical Portugal-Tintas Graficas Unipessoal Ltda.
Sun Chemical Printing Ink d.o.o.
Sun Chemical Publication A.E.
Sun Chemical S.A.U.
Sun Chemical S.A.S.
Sun Chemical (South Africa) (Pty) Ltd.
Sun Chemical s.r.l.
Sun Chemical, s.r.o.
Sun Chemical Sp. z.o.o.
Sun Chemical Turkey
Sun Chemical Ukraine Ltd.
Sun Chemical A.O
Sun Inkjet Ceramics, S.L.
4PLATE GmbH

### ■ North, Central and South America

Benda-Lutz Corporation
Camus Water Technologies LLC
Cathay Deep Well Disposal LLC
Coates Brothers (Caribbean) Ltd.
DIC Imaging Products USA, LLC
Earthrise Holdings Inc.
Earthrise Nutritionals LLC
Inmobiliaria Sunchem, S.A. de C.V.
Joules Angstrom U.V. Printing Inks Corp.
Mondis Manufacturers Insurance Company N.V.
New England Manufacturers Insurance Corp.
Rycoline Products, LLC
SC Funding LLC
Sinclair International Inc.
Sinclair S.A.S.
Sinclair Sun Chemical Ecuador S.A.
Sun Chemical (Chile) S.A.
Sun Chemical Corporation
Sun Chemical de Centro America, S.A. de C.V.
Sun Chemical do Brasil Ltda.
Sun Chemical Inks S.A.
Sun Chemical Ltd.
Sun Chemical Management, L.L.C.
Sun Chemical of Michigan LLC
Sun Chemical Peru S.A.
Sun Chemical S.A. de C.V.
Sun Cosmetics LLC
Tintas S.A.S.

(Information is as of March 31 2019 )

Color & Comfort

# DIC Report 2019

**Financial Section Year ended December 31, 2018**

DIC Corporation

One of the world's leading diversified chemicals companies, DIC Corporation is also the core of the DIC Group, a multinational organization with operations in more than 60 countries and territories worldwide. Established in 1908 as a manufacturer of printing inks, DIC has capitalized on its extensive technologies, know-how and experience in the years since to build a broad business portfolio of materials and finished products, enabling it to provide innovative solutions to customers in diverse industries and transforming it into a global powerhouse in its key fields of endeavor.

Now in its second century in business, DIC is redoubling its efforts to develop and market innovative, high-performance products that respond to the needs of customers in markets around the world, in line with its "Color & Comfort by Chemistry" vision. A responsible corporate citizen, DIC is also committed to helping realize environmental and social sustainability.

# The DIC WAY

## Mission

Through constant innovation, the DIC Group strives to create enhanced value and to contribute to sustainable development for its customers and society.

## Vision

Color & Comfort by Chemistry


## Spirit

**Drive**
The force that propels our employees to think and take action

**Integrity**
Maintaining a moral attitude, and facing matters head-on with reason and a sense of responsibility

**Dedication**
Having a sense of ownership and ambition, and taking a passionate approach to the tasks at hand

**Collaboration**
Working to resolve matters by rallying the collective power of the global DIC Group, while respecting the individuality and diversity of each and every one of our employees

**Harmony**
Fulfilling our social responsibility as good corporate citizens, and always remaining conscious of compliance issues

**Contents**

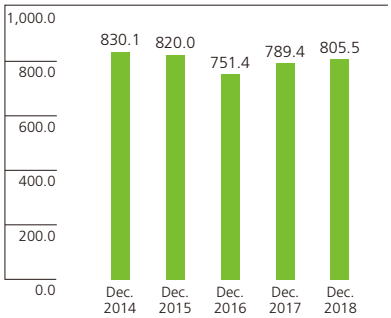
# 1 Consolidated Five-Year Summary

*DIC Corporation and Consolidated Subsidiaries*
*Years ended December 31, 2018 to 2014*

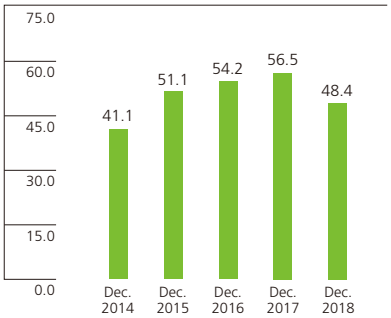
| | Millions of yen, except for per share information | | | | | Thousands of U.S. dollars, except for per share information (Note 7) |
|---|---|---|---|---|---|---|
| | **Dec. 2018** | Dec. 2017 | Dec. 2016 | Dec. 2015 | Dec. 2014 | **Dec. 2018** |
| Net sales | **¥805,498** | ¥789,427 | ¥751,438 | ¥819,999 | ¥830,078 | **$7,322,709** |
| Percent increase (decrease) | **2.0%** | 5.1% | (8.4)% | (1.2)% | —% | **2.0%** |
| Operating income | **48,385** | 56,483 | 54,182 | 51,068 | 41,076 | **439,864** |
| Net income attributable to owners of the parent | **32,028** | 38,603 | 34,767 | 37,394 | 25,194 | **291,164** |
| Equity (Note 3) | **298,896** | 315,129 | 278,535 | 262,467 | 249,749 | **2,717,236** |
| Total assets | **805,486** | 831,756 | 764,828 | 778,857 | 803,703 | **7,322,600** |
| Equity per share (Notes 1, 4 and 6) | **¥3,158.05** | ¥3,329.60 | ¥2,938.12 | ¥2,768.41 | ¥ 259.63 | **$28.71** |
| Earnings per share (basic) (Notes 2, 4 and 6) | **338.40** | 407.56 | 366.72 | 389.40 | 26.78 | **3.08** |
| Cash dividends per share applicable to the period (Note 5) | **125.00** | 120.00 | 64.00 | 8.00 | 6.00 | **1.14** |
| Equity ratio to total assets | **37.1%** | 37.9% | 36.4% | 33.7% | 31.1% | **37.1%** |
| ROE (return on equity) | **10.4%** | 13.0% | 12.9% | 14.6% | 11.3% | **10.4%** |
| Number of employees | **20,620** | 20,628 | 20,481 | 20,264 | 20,411 | **20,620** |

*Notes: 1. The computation of equity per share has been based on the number of shares issued as of the balance sheet date.*
*2. The computation of earnings per share has been based on the weighted-average number of shares issued during each fiscal year.*
*3. Equity comprises "Total shareholders' equity" and "Total accumulated other comprehensive income."*
*4. The Company implemented a consolidation of shares of common stock by a factor of 10 to 1 with July 1, 2016, as the effective date. Earnings per share (basic) and equity per share are calculated respectively based on the assumption that the consolidation had been implemented at the beginning of the fiscal year ended December 31, 2015.*
*5. The Company implemented a consolidation of shares of common stock by a factor of 10 to 1 with July 1, 2016, as the effective date. Cash dividends per share applicable to the period for the fiscal year ended December 31, 2016, comprises interim dividends of ¥4.00 (before the consolidation) and year-end dividends of ¥60.00 (after the consolidation). If the consolidation had been taken into consideration, cash dividends per share applicable to the period for the fiscal year ended December 31, 2016, would be ¥100.00.*
*6. From the fiscal year ended December 31, 2017, the Company introduced the Board Benefit Trust (BBT). The shares held by the trust are recorded under net assets as treasury shares. The number of treasury shares excluded from the number of shares issued as of the balance sheet date used for the calculation of equity per share includes the number of shares held by the trust. The number of treasury shares excluded from the weighted-average number of shares issued during the fiscal year used for the calculation of earnings per share includes the number of shares held by the trust.*
*7. Yen amounts have been translated, for readers' convenience only, at the rate of ¥110 to US$1, the approximate rate of exchange at December 31, 2018.*

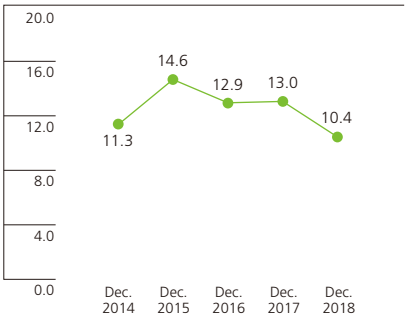
**Net Sales**
*(Billions of yen)*



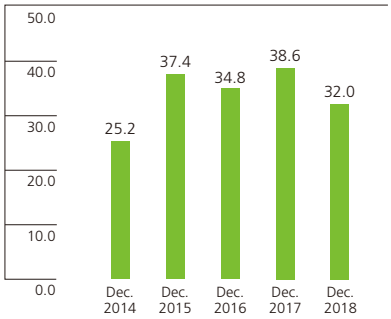

**Operating Income**
*(Billions of yen)*



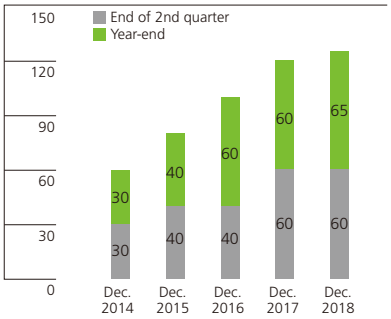

**ROE**
*(%)*



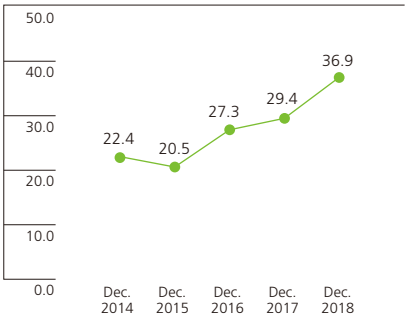

**Net Income Attributable to Owners of the Parent**
*(Billions of yen)*




**Cash Dividends per Share**
*(Yen)*




**Dividend Payout Ratio**
*(%)*




* These figures have been adjusted to account for the impact of a consolidation of shares of common stock by a factor of 10 to 1 with July 1, 2016, as the effective date.

**This document presents consolidated results for fiscal year 2018, comprising the accounts for the year ended December 31, 2018, of DIC and its domestic and overseas subsidiaries.**

## Operating Results

Economic conditions worldwide recovered gradually in fiscal year 2018, although signs of weakness were seen in certain areas. Moderate recovery persisted in North America and Europe. In Asia, economic conditions picked up slowly in Southeast Asia and India, despite slowing in the People's Republic of China (PRC). Japan's economy rallied steadily.

In this environment, consolidated net sales increased 2.0%, to ¥805.5 billion, reflecting multiple factors, including the revision of sales prices and firm shipments. Operating income declined 14.3%, to ¥48.4 billion, hampered by rising raw materials prices, higher distribution costs and the depreciation of currencies in European emerging economies, among others. Ordinary income was down 14.5%, to ¥48.7 billion, with causes including lower operating income. Net income attributable to owners of the parent fell 17.0%, to ¥32.0 billion. Reasons behind this result included the decrease in ordinary income.

| | Billions of yen | | | |
|---|---|---|---|---|
| | **FY2018** | FY2017 | Change (%) | Change calculated in local currency (%) |
| Net sales | **¥805.5** | ¥789.4 | 2.0% | 3.3% |
| Operating income | **48.4** | 56.5 | (14.3) | (11.4) |
| Ordinary income | **48.7** | 57.0 | (14.5) | — |
| Net income attributable to owners of the parent | **32.0** | 38.6 | (17.0) | — |

| | Yen | |
|---|---|---|
| | **FY2018** | FY2017 |
| Average exchange rate (¥/US$) | **¥110.46** | ¥112.33 |
| Average exchange rate (¥/EUR) | **130.46** | 127.03 |

## Segment Results

Segment results in key markets are as follows. Year-on-year percentage changes excluding the impact of foreign currency fluctuations are presented as "change calculated in local currency." Interregional transactions within the Printing Inks segment are included. Accordingly, the aggregates of regional net sales and operating income figures for the Printing Inks segment differ from the figures presented in the Notes to the Consolidated Financial Statements.

### Printing Inks

**Japan**

Sales in Japan declined, a consequence of diminished demand for publishing inks, among others. Operating income fell sharply, owing to the aforementioned sales results, as well as to rising raw materials prices, higher distribution costs and other factors.

**The Americas and Europe**

Although sales of packaging inks rose, sales in North America edged down, owing to waning demand for publishing inks and news inks. In Europe, sales increased, boosted by brisk shipments of packaging inks. Sales in Central and South America were up in all product categories. As a result, overall sales in the Americas and Europe advanced, underpinned by an increase in sales of packaging inks, among others. Despite rising in local currency terms, reflecting the aforementioned sales results and expanded sales of security inks, operating income was down after translation owing to the depreciation of currencies in emerging economies, including the Turkish lira.

**Asia and Oceania**

Higher shipments of packaging inks and publishing inks bolstered sales in the PRC and Southeast Asia. Sales in Oceania fell, with causes including fading demand for publishing inks and news inks. Sales in India increased in all product categories. For these reasons, overall sales in Asia and Oceania advanced. Operating income decreased significantly, regardless of the aforementioned sales results, a consequence of rising raw materials prices and other factors.

| | | Billions of yen FY2018 | Change (%) | Change calculated in local currency (%) |
|---|---|---|---|---|
| Japan | Net sales | **¥ 74.4** | (3.6)% | —% |
| | Operating income | **1.8** | (53.4) | — |
| The Americas and Europe | Net sales | **247.2** | 2.5 | 6.1 |
| | Operating income | **8.8** | (7.7) | 9.3 |
| Asia and Oceania | Net sales | **67.6** | 4.3 | 7.1 |
| | Operating income | **3.2** | (19.8) | (18.6) |

## Fine Chemicals

Sales of pigments were down, despite an increase in shipments of pigments for color filters and effect pigments, among others. Reasons behind this result included a lull in shipments of pigments for cosmetics and flagging demand for other pigments. Sales of thin-film transistor liquid crystals (TFT LCs) fell, with reasons including falling sales prices. As a consequence, segment sales declined. Owing to the aforementioned sales results, as well as to the impact of environmental regulations in the PRC, segment operating income decreased.

| | Billions of yen FY2018 | Change (%) | Change calculated in local currency (%) |
|---|---|---|---|
| Net sales | **¥132.3** | (2.3)% | (1.8)% |
| Operating income | **16.4** | (5.5) | (5.9) |

## Polymers

Sales of epoxy resins and other products for electronic and electrical equipment advanced both in Japan and overseas. In addition, the revision of sales prices progressed. For these and other reasons, segment sales rose. Segment operating income declined, notwithstanding the aforementioned sales results. Factors behind this result included the fact that efforts to revise sales prices failed to keep up with rising raw materials prices.

| | Billions of yen FY2018 | Change (%) | Change calculated in local currency (%) |
|---|---|---|---|
| Net sales | **¥205.8** | 4.0% | 3.8% |
| Operating income | **17.5** | (10.6) | (10.7) |

## Compounds

Shipments of polyphenylene sulfide (PPS) compounds and jet inks expanded steadily. Nonetheless, segment sales were up only slightly, owing to the scaling back of low-margin businesses and other factors. Segment operating income fell sharply. This was attributable to a one-time cost increase associated with the scaling back of low-margin businesses, as well as to rising raw materials prices, among others.

| | Billions of yen FY2018 | Change (%) | Change calculated in local currency (%) |
|---|---|---|---|
| Net sales | **¥65.2** | 0.8% | 0.9% |
| Operating income | **3.2** | (35.4) | (35.7) |

## Application Materials

Segment sales increased, reflecting higher shipments of high-value-added products such as coextruded multi-layer films and hollow-fiber membrane modules, among others. Segment operating income rose substantially. Reasons behind this result included the aforementioned sales results.

| | Billions of yen | | |
|---|---|---|---|
| | FY2018 | Change (%) | Change calculated in local currency (%) |
| Net sales | **¥58.5** | 4.3% | 4.1% |
| Operating income | **3.2** | 23.0 | 22.4 |

## Analysis of Cash Flows

Cash and cash equivalents as of December 31, 2018, totaled ¥18.6 billion, an increase of ¥1.0 billion from the previous fiscal year-end.

### Operating Activities

Net cash provided by operating activities amounted to ¥51.0 billion, down from ¥54.2 billion provided by such activities in fiscal year 2017. Income before income taxes and non-controlling interests was ¥48.8 billion, while the adjustment for depreciation and amortization amounted to ¥32.8 billion. Income taxes paid totaled ¥13.1 billion, while working capital increased ¥3.7 billion.

### Investing Activities

Net cash used in investing activities came to ¥38.4 billion, down from ¥58.9 billion used in such activities in the previous fiscal year. A total of ¥11.5 billion was applied to the purchase of shares and investments in capital of subsidiaries resulting in change in scope of consolidation. In contrast, proceeds from sales and redemption of investment securities came to ¥4.2 billion. Capital expenditure amounted to ¥32.1 billion.

### Financing Activities

Net cash used in financing activities amounted to ¥11.8 billion, compared with ¥11.4 billion provided by such activities in fiscal year 2017. The net total of funds procured was ¥1.7 billion, while cash dividends paid totaled ¥11.4 billion.

# 5 Consolidated Balance Sheet

*DIC Corporation and Consolidated Subsidiaries*
*December 31, 2018*

## Assets

| | Millions of yen | |
|---|---|---|
| | **2018** | 2017 |
| **Current assets:** | | |
| Cash and deposits (Notes 6, 11 and 19) | **¥ 19,782** | ¥ 17,883 |
| Notes and accounts receivable—trade (Notes 11, 19 and 20) | **209,763** | 226,968 |
| Merchandise and finished goods (Note 11) | **94,611** | 90,010 |
| Work in process (Note 11) | **9,403** | 9,053 |
| Raw materials and supplies (Note 11) | **61,937** | 58,911 |
| Deferred tax assets (Note 16) | **8,891** | 9,574 |
| Other (Note 19) | **23,878** | 23,340 |
| Allowance for doubtful accounts | **(9,722)** | (10,763) |
| Total current assets | **418,543** | 424,976 |
| **Non-current assets:** | | |
| **Property, plant and equipment** (Notes 9, 10 and 11): | | |
| Buildings and structures | **88,892** | 92,443 |
| Machinery, equipment and vehicles | **70,951** | 70,554 |
| Tools, furniture and fixtures | **11,395** | 11,129 |
| Land | **48,985** | 50,307 |
| Construction in progress | **7,928** | 7,244 |
| Total property, plant and equipment | **228,151** | 231,677 |
| **Intangible assets:** | | |
| Goodwill | **34** | 199 |
| Software | **2,887** | 3,837 |
| Customer-related assets | **3,359** | 874 |
| Other | **7,502** | 2,674 |
| Total intangible assets | **13,782** | 7,584 |
| **Investments and other assets:** | | |
| Investment securities (Notes 7, 8 and 19) | **67,523** | 76,867 |
| Deferred tax assets (Note 16) | **28,612** | 31,871 |
| Net defined benefit asset (Note 12) | **25,089** | 33,408 |
| Other (Notes 7 and 19) | **23,947** | 26,858 |
| Allowance for doubtful accounts | **(161)** | (1,485) |
| Total investments and other assets | **145,010** | 167,519 |
| Total non-current assets | **386,943** | 406,780 |
| Total assets | **¥805,486** | ¥831,756 |

*See notes to the consolidated financial statements.*

## Liabilities and Net Assets

| | Millions of yen | |
|---|---|---|
| | **2018** | 2017 |
| **Current liabilities:** | | |
| Notes and accounts payable—trade (Notes 19 and 20) | **¥118,554** | ¥117,199 |
| Short-term loans payable (Notes 11 and 19) | **29,986** | 61,385 |
| Current portion of long-term loans payable (Notes 11, 19 and 20) | **49,792** | 27,677 |
| Lease obligations (Notes 11 and 19) | **667** | 557 |
| Income taxes payable (Notes 16 and 19) | **2,843** | 4,793 |
| Deferred tax liabilities (Note 16) | **325** | 399 |
| Provision for bonuses | **6,283** | 7,071 |
| Other (Note 19) | **47,476** | 47,509 |
| Total current liabilities | **255,926** | 266,590 |
| **Non-current liabilities:** | | |
| Bonds payable (Notes 11, 19 and 20) | **60,000** | 50,000 |
| Long-term loans payable (Notes 11, 19 and 20) | **119,791** | 122,017 |
| Lease obligations (Notes 11 and 19) | **4,229** | 4,045 |
| Deferred tax liabilities (Note 16) | **6,672** | 11,653 |
| Net defined benefit liability (Note 12) | **20,519** | 22,774 |
| Asset retirement obligations | **1,482** | 1,329 |
| Other | **9,533** | 9,397 |
| Total non-current liabilities | **222,226** | 221,215 |
| Total liabilities | **478,152** | 487,805 |
| **Net assets:** | | |
| **Shareholders' equity** (Notes 13 and 23): | | |
| Capital stock (Note 14) | **96,557** | 96,557 |
| Capital surplus | **94,445** | 94,445 |
| Retained earnings | **207,421** | 186,768 |
| Treasury shares (Note 15) | **(1,823)** | (1,828) |
| **Total shareholders' equity** | **396,600** | 375,942 |
| **Accumulated other comprehensive income:** | | |
| Valuation difference on available-for-sale securities | **1,407** | 7,874 |
| Deferred gains or losses on hedges | **14** | (3) |
| Foreign currency translation adjustment | **(67,617)** | (46,462) |
| Remeasurements of defined benefit plans (Note 12) | **(31,508)** | (22,222) |
| **Total accumulated other comprehensive income** | **(97,704)** | (60,813) |
| **Non-controlling interests** | **28,438** | 28,822 |
| Total net assets | **327,334** | 343,951 |
| Total liabilities and net assets | **¥805,486** | ¥831,756 |

# 7 Consolidated Statement of Income

*DIC Corporation and Consolidated Subsidiaries*
*Year ended December 31, 2018*

| | Millions of yen | |
|---|---|---|
| | **2018** | 2017 |
| **Net sales** | **¥805,498** | ¥789,427 |
| **Cost of sales** | **629,850** | 605,809 |
| Gross profit | **175,648** | 183,618 |
| | | |
| **Selling, general and administrative expenses** (Note 17) | **127,263** | 127,135 |
| Operating income | **48,385** | 56,483 |
| | | |
| **Non-operating income:** | | |
| Interest income | **3,781** | 1,817 |
| Dividends income | **425** | 447 |
| Equity in earnings of affiliates | **3,845** | 4,069 |
| Other | **1,631** | 2,019 |
| Total non-operating income | **9,682** | 8,352 |
| | | |
| **Non-operating expenses:** | | |
| Interest expenses | **5,114** | 3,565 |
| Foreign exchange losses | **828** | 1,456 |
| Other | **3,423** | 2,854 |
| Total non-operating expenses | **9,365** | 7,875 |
| | | |
| **Ordinary income** | **48,702** | 56,960 |
| | | |
| **Extraordinary income:** | | |
| Gain on sales of investment securities | **3,270** | — |
| Gain on sales of subsidiaries and affiliates securities | **679** | 315 |
| Gain on sales of non-current assets | **431** | 1,156 |
| Insurance income | **237** | — |
| Gain on change in equity | **—** | 641 |
| Total extraordinary income | **4,617** | 2,112 |
| | | |
| **Extraordinary loss:** | | |
| Loss on disposal of non-current assets | **2,535** | 2,682 |
| Severance costs | **1,539** | 951 |
| Loss on disaster | **409** | — |
| Early termination fee | **—** | 376 |
| Impairment loss (Note 10) | **—** | 234 |
| Total extraordinary loss | **4,483** | 4,243 |
| | | |
| **Income before income taxes and non-controlling interests** | **48,836** | 54,829 |
| **Income taxes** (Note 16): | | |
| Income taxes—current | **11,015** | 10,517 |
| Income taxes—deferred | **4,019** | 3,388 |
| Total income taxes | **15,034** | 13,905 |
| | | |
| **Net income** | **33,802** | 40,924 |
| **Net income attributable to non-controlling interests** | **1,774** | 2,321 |
| **Net income attributable to owners of the parent** | **¥ 32,028** | ¥ 38,603 |
| | | Yen |
| **Earnings per share** (Note 2): | | |
| Basic | **¥ 338.40** | ¥ 407.56 |
| Diluted | **—** | — |
| Weighted-average number of shares issued during the period, excluding treasury shares (in thousands) | **94,647** | 94,717 |
| **Cash dividends per share applicable to the period** (Note 2) | **¥ 125.00** | ¥ 120.00 |

*See notes to the consolidated financial statements.*

# 8 Consolidated Statement of Comprehensive Income

*DIC Corporation and Consolidated Subsidiaries*
*Year ended December 31, 2018*

Millions of yen

| | 2018 | 2017 |
|---|---|---|
| Net income | ¥ 33,802 | ¥40,924 |
| | | |
| Other comprehensive income: | | |
| Valuation difference on available-for-sale securities | (6,502) | 2,590 |
| Deferred gains or losses on hedges | 17 | 183 |
| Foreign currency translation adjustment | (20,203) | 979 |
| Remeasurements of defined benefit plans, net of tax (Note 12) | (9,413) | 4,718 |
| Share of other comprehensive income of associates accounted for using equity method | (1,545) | 1,563 |
| Total other comprehensive income (Note 22) | ¥(37,646) | ¥10,033 |
| | | |
| Comprehensive income | ¥ (3,844) | ¥50,957 |
| | | |
| Comprehensive income attributable to: | | |
| Comprehensive income attributable to owners of the parent | ¥ (4,863) | ¥48,234 |
| Comprehensive income attributable to non-controlling interests | 1,019 | 2,723 |

*See notes to the consolidated financial statements.*

# 9 Consolidated Statement of Changes in Net Assets

*DIC Corporation and Consolidated Subsidiaries*
*Year ended December 31, 2018*

Millions of yen

| | Shareholders' equity | | | | | |
|---|---|---|---|---|---|---|
| | Issued number of common stock (thousands) | Capital stock | Capital surplus | Retained earnings | Treasury shares | Total shareholders' equity |
| Balance at January 1, 2017 | 95,157 | ¥96,557 | ¥94,094 | ¥ 159,541 | ¥(1,213) | ¥ 348,979 |
| Dividends from surplus, ¥120.00 per share (Note 13) | | | | (11,376) | | (11,376) |
| Net income attributable to owners of the parent | | | | 38,603 | | 38,603 |
| Purchase of treasury shares—155,741 shares | | | | | (615) | (615) |
| Change in ownership interest of parent due to transactions with non-controlling interests | | | 351 | | | 351 |
| Net changes of items other than shareholders' equity (Notes 8 and 13) | | | | | | |
| Balance at December 31, 2017 | 95,157 | 96,557 | 94,445 | 186,768 | (1,828) | 375,942 |
| Dividends from surplus, ¥120.00 per share (Note 13) | | | | **(11,375)** | | **(11,375)** |
| Net income attributable to owners of the parent | | | | **32,028** | | **32,028** |
| Purchase of treasury shares—2,642 shares | | | | | **(10)** | **(10)** |
| Disposal of treasury shares—3,900 shares | | | | | **15** | **15** |
| Net changes of items other than shareholders' equity (Notes 8 and 13) | | | | | | |
| Balance at December 31, 2018 | **95,157** | **¥96,557** | **¥94,445** | **¥ 207,421** | **¥(1,823)** | **¥ 396,600** |

Millions of yen

| | Accumulated other comprehensive income | | | | | | |
|---|---|---|---|---|---|---|---|
| | Valuation difference on available-for-sale securities | Deferred gains or losses on hedges | Foreign currency translation adjustment | Remeasurements of defined benefit plans | Total accumulated other comprehensive income | Non-controlling interests | Total net assets |
| Balance at January 1, 2017 | ¥ 5,248 | ¥(187) | ¥(48,626) | ¥(26,879) | ¥(70,444) | ¥28,482 | ¥ 307,017 |
| Dividends from surplus, ¥120.00 per share (Note 13) | | | | | | | (11,376) |
| Net income attributable to owners of the parent | | | | | | | 38,603 |
| Purchase of treasury shares—155,741 shares | | | | | | | (615) |
| Change in ownership interest of parent due to transactions with non-controlling interests | | | | | | | 351 |
| Net changes of items other than shareholders' equity (Notes 8 and 13) | 2,626 | 184 | 2,164 | 4,657 | 9,631 | 340 | 9,971 |
| Balance at December 31, 2017 | 7,874 | (3) | (46,462) | (22,222) | (60,813) | 28,822 | 343,951 |
| Dividends from surplus, ¥120.00 per share (Note 13) | | | | | | | **(11,375)** |
| Net income attributable to owners of the parent | | | | | | | **32,028** |
| Purchase of treasury shares—2,642 shares | | | | | | | **(10)** |
| Disposal of treasury shares—3,900 shares | | | | | | | **15** |
| Net changes of items other than shareholders' equity (Notes 8 and 13) | **(6,467)** | **17** | **(21,155)** | **(9,286)** | **(36,891)** | **(384)** | **(37,275)** |
| Balance at December 31, 2018 | **¥ 1,407** | **¥ 14** | **¥(67,617)** | **¥(31,508)** | **¥(97,704)** | **¥28,438** | **¥ 327,334** |

*See notes to the consolidated financial statements.*

# 10 Consolidated Statement of Cash Flows

*DIC Corporation and Consolidated Subsidiaries*
*Year ended December 31, 2018*

| | Millions of yen | |
|---|---|---|
| | **2018** | 2017 |
| **Net cash provided by (used in) operating activities:** | | |
| Income before income taxes and non-controlling interests | **¥ 48,836** | ¥ 54,829 |
| Adjustments for: | | |
| Depreciation and amortization | **32,825** | 31,524 |
| Amortization of goodwill | **156** | 345 |
| Increase (decrease) in allowance for doubtful accounts | **(263)** | (720) |
| Increase (decrease) in provision for bonuses | **(782)** | 13 |
| Interest and dividends income | **(4,206)** | (2,264) |
| Equity in (earnings) losses of affiliates | **(3,845)** | (4,069) |
| Interest expenses | **5,114** | 3,565 |
| Loss (gain) on sales and retirement of non-current assets | **2,104** | 1,526 |
| Impairment loss | **—** | 234 |
| Loss (gain) on sales of subsidiaries and affiliates securities | **(679)** | (315) |
| Loss (gain) on sales of investment securities | **(3,270)** | — |
| Decrease (increase) in notes and accounts receivable—trade | **6,897** | (7,070) |
| Decrease (increase) in inventories | **(14,516)** | (9,742) |
| Increase (decrease) in notes and accounts payable—trade | **3,966** | 9,328 |
| Other, net | **(9,524)** | (11,246) |
| Subtotal | **62,813** | 65,938 |
| Interest and dividends income received | **6,307** | 4,180 |
| Interest expenses paid | **(5,050)** | (3,628) |
| Income taxes paid | **(13,080)** | (12,294) |
| Net cash provided by (used in) operating activities | **50,990** | 54,196 |
| **Net cash provided by (used in) investing activities:** | | |
| Payments into time deposits | **(3,832)** | (8,231) |
| Proceeds from withdrawal of time deposits | **2,893** | 8,560 |
| Purchase of property, plant and equipment | **(31,343)** | (32,192) |
| Proceeds from sales of property, plant and equipment | **1,336** | 2,103 |
| Purchase of intangible assets | **(741)** | (1,392) |
| Purchase of shares and investments in capital of subsidiaries resulting in change in scope of consolidation | **(11,524)** | (515) |
| Proceeds from shares and investments in capital of subsidiaries resulting in change in scope of consolidation | **679** | — |
| Purchase of subsidiaries and affiliates securities | **(157)** | (27,209) |
| Proceeds from sales of subsidiaries and affiliates securities | **671** | — |
| Purchase of investment securities | **(509)** | (851) |
| Proceeds from sales and redemption of investment securities | **4,150** | 465 |
| Payments for transfer of business | **(690)** | (338) |
| Other, net | **679** | 662 |
| Net cash provided by (used in) investing activities | **(38,388)** | (58,938) |
| **Net cash provided by (used in) financing activities:** | | |
| Net increase (decrease) in short-term loans payable | **(29,689)** | 9,272 |
| Proceeds from long-term loans payable | **60,627** | 44,823 |
| Repayment of long-term loans payable | **(39,204)** | (48,022) |
| Proceeds from issuance of bonds | **10,000** | 20,000 |
| Cash dividends paid | **(11,375)** | (11,376) |
| Cash dividends paid to non-controlling interests | **(1,348)** | (1,439) |
| Net decrease (increase) in treasury shares | **5** | (615) |
| Purchase of shares and investments in capital of subsidiaries that does not result in change in scope of consolidation | **(62)** | (578) |
| Other, net | **(735)** | (690) |
| Net cash provided by (used in) financing activities | **(11,781)** | 11,375 |
| **Effect of exchange rate change on cash and cash equivalents** | **159** | (5,653) |
| **Net increase (decrease) in cash and cash equivalents** | **980** | 980 |
| **Cash and cash equivalents at beginning of the period** (Note 6) | **17,651** | 16,671 |
| **Cash and cash equivalents at end of the period** (Note 6) | **¥ 18,631** | ¥ 17,651 |

*See notes to the consolidated financial statements.*

# Notes to the Consolidated Financial Statements

*DIC Corporation and Consolidated Subsidiaries*
*Year ended December 31, 2018*

## Note 1:

### Basis of Presenting Financial Statements

The accompanying consolidated financial statements have been prepared in accordance with the provisions set forth in the Japanese Financial Instruments and Exchange Act and its related accounting regulations, and in accordance with accounting principles generally accepted in Japan ("Japanese GAAP"), which are different in certain respects as to application and disclosure requirements of the International Financial Reporting Standards ("IFRS").

In preparing these consolidated financial statements, certain reclassifications and rearrangements have been made to the consolidated financial statements issued domestically in order to present them in a form which is more familiar to readers outside Japan. The consolidated financial statements are stated in Japanese yen, the currency of the country in which DIC Corporation (the "Company") is incorporated.

## Note 2:

### Summary of Significant Accounting Policies

#### Consolidated financial statements

Under the control or influence concept, those companies in which the Company, directly or indirectly, is able to exercise control over operations are fully consolidated and those companies over which the Company has the ability to exercise significant influence are accounted for by the equity method.

The consolidated financial statements include the accounts of the Company and its significant subsidiaries: Sun Chemical Group Coöperatief U.A., DIC (CHINA) CO., LTD., DIC Asia Pacific Pte Ltd, SEIKO PMC CORPORATION, DIC INVESTMENTS JAPAN, LLC., DIC Graphics Corporation and 141 other companies in the fiscal year ended December 31, 2018 (138 other companies in the fiscal year ended December 31, 2017). All significant intercompany balances and transactions have been eliminated in consolidation. All material unrealized profit included in assets resulting from transactions within the Company and its consolidated subsidiaries (the "Group") is eliminated.

Investments in 26 affiliates in the fiscal year ended December 31, 2018 (26 in the fiscal year ended December 31, 2017), are accounted for by the equity method.

#### Accounting period of consolidated subsidiaries

The closing date of the consolidated subsidiaries is the same as the consolidated closing date.

#### Cash and cash equivalents

Cash and cash equivalents consist primarily of cash on hand, certificates of deposit and short-term investments with original maturities of three months or less that are readily convertible to known amounts of cash and have insignificant risk of changes in value.

#### Investment securities

Investment securities are classified and accounted for, depending on management's intent, into available-for-sale securities. Available-for-sale securities are carried at fair value as of the balance sheet date, with unrealized gain and loss, net of applicable taxes, reported in a separate component of net assets. Available-for-sale securities whose fair values are not readily available are carried at cost. The cost of securities sold is calculated by the moving-average method.

#### Allowance for doubtful accounts

Allowance for doubtful accounts of the Company and its domestic consolidated subsidiaries is provided mainly based on historical experience for normal receivables and on an estimate of collectability of receivables from companies in financial difficulty.

Allowance for doubtful accounts of foreign consolidated subsidiaries is provided mainly based on an estimate of collectability of receivables.

#### Inventories

Inventories are principally stated at cost, cost being determined by the FIFO method, which evaluates the amount of the inventories shown in the balance sheet by writing them down based on their decrease in profitability.

#### Property, plant and equipment (excluding leased assets)

Property, plant and equipment are carried at cost. Significant renewals and additions are capitalized; maintenance and repairs, and minor renewals and improvements, are charged to income as incurred.

Depreciation of buildings (other than facilities attached to buildings) of the Company and its domestic consolidated subsidiaries is calculated principally by the straight-line method. Besides, depreciation of facilities

attached to buildings and structures acquired on or after April 1, 2016, is also calculated by the straight-line method. Other property, plant and equipment are calculated by the declining-balance method.

Depreciation of property, plant and equipment of foreign consolidated subsidiaries is calculated principally by the straight-line method. The range of useful lives is principally from 8 to 50 years for buildings and structures and from 3 to 11 years for machinery, equipment and vehicles.

**Intangible assets (excluding leased assets)**

Intangible assets are carried at cost less accumulated amortization, and are amortized by the straight-line method. Goodwill is amortized by the straight-line method over a reasonable period not exceeding 20 years.

**Leased assets**

For the Company and its domestic consolidated subsidiaries, leased assets related to finance leases that do not transfer ownership of the leased property to the lessee are depreciated on a straight-line basis, with the lease periods used as their useful lives and no residual value.

Foreign consolidated subsidiaries account for lease transactions in accordance with either the accounting principles generally accepted in the United States ("U.S. GAAP") or IFRS.

**Retirement and pension plans**

Net defined benefit assets/liabilities are recognized for employees' and executive officers' retirement benefits. Pension assets are deducted from retirement benefit obligations and the net amount is recognized based on the estimated amount of payment as of the balance sheet date. In calculating retirement benefit obligations, the Company applies a method of attributing expected retirement benefits to each period on a benefit formula basis. The Company and its domestic consolidated subsidiaries amortize actuarial gains and losses in the succeeding years primarily by the straight-line method over stated years that do not exceed the average remaining service period of the eligible employees (14 to 16 years). Past service costs are amortized in the accounting periods when they accrue.

Foreign consolidated subsidiaries amortize actuarial gains and losses in the succeeding years primarily by the straight-line method over stated years that do not exceed the average remaining service period of the eligible employees (8 to 28 years). Past service costs are amortized over 2 to 28 years.

Unrecognized actuarial gains and losses and unrecognized past service costs are recorded in "Remeasurements of defined benefit plans" in net assets after adjusting income tax effect.

**Asset retirement obligations**

The asset retirement obligation is recognized as the sum of the discounted cash flows required for the future asset retirement and is recorded in the period in which the obligation is incurred if a reasonable estimate can be made. If a reasonable estimate of the asset retirement obligation cannot be made in the period in which the asset retirement obligation is incurred, the liability should be recognized when a reasonable estimate of the asset retirement obligation can be made. Upon initial recognition of a liability for an asset retirement obligation, an asset retirement cost is capitalized by increasing the carrying amount of the related fixed asset by the amount of the liability. The asset retirement cost is subsequently allocated to expense through depreciation over the remaining useful life of the asset. Over time, the liability is accreted to its present value each period. Any subsequent revisions to the timing or the amount of the original estimate of undiscounted cash flows are reflected as an increase or a decrease in the carrying amount of the liability and the capitalized amount of the related asset retirement cost.

**Income taxes**

The provision for income taxes is computed based on the pretax income (loss) included in the consolidated statement of income.

Deferred income taxes are recorded to reflect the impact of temporary differences between assets and liabilities recognized for financial reporting purposes and such amounts recognized for tax purposes. These deferred taxes are measured by applying currently enacted tax laws to the temporary differences.

**Research and development costs**

Research and development costs are charged to income as incurred.

### Basis of translation of financial statements of foreign consolidated subsidiaries

The financial statements of foreign consolidated subsidiaries included in the consolidated financial statements are translated into Japanese yen based on the following procedures:

(1) Assets and liabilities of foreign consolidated subsidiaries are translated into Japanese yen at the exchange rates as of the balance sheet date.

(2) Income and expenses are translated into Japanese yen at the average rate during the year.

The differences of translation are included in foreign currency translation adjustment and non-controlling interests, which are presented as separate components of net assets.

### Translation of foreign currency accounts

Receivables and payables denominated in foreign currencies are translated into Japanese yen at the exchange rates as of the balance sheet date and any difference arising from the translation is recognized in the consolidated statement of income if hedge accounting is not applied.

### Derivatives and hedging activities

To hedge risks associated with the fluctuations of exchange rates, interest rates and commodity prices, the Group uses foreign currency forward contracts, currency options and swaps, interest rate swaps and commodity swaps. To hedge a part of the risks associated with the fluctuations of exchange rates for net investments in foreign entities, the Company uses loans denominated in foreign currencies. The Group does not enter into derivatives for trading or speculative purposes.

Derivative financial instruments and foreign currency transactions are classified and accounted for as follows: 1) all derivatives are recognized as either assets or liabilities and measured at fair value, with gains or losses recognized in the consolidated statement of income and 2) for derivatives used for hedging purposes, if derivatives qualify for hedge accounting because of high correlation and effectiveness between the hedging instruments and the hedged items, gains or losses on derivatives are deferred until maturity of the hedged transactions.

Receivables and payables denominated in foreign currencies are translated at the contracted rates if the forward contracts qualify for hedge accounting. Gains and losses related to qualifying hedges of firm commitments or anticipated transactions are deferred and recognized in income when the hedged transaction occurs. If interest rate swaps qualify for hedge accounting and meet certain specific matching criteria, they will not be measured at market value, rather the differential paid or received under the swaps will be recognized in interest expenses or interest income.

### Per share information

Earnings per share (basic) is computed by dividing net income attributable to owners of the parent available to common shareholders by the weighted-average number of shares issued for the period, retroactively adjusted for stock splits.

The Company implemented a consolidation of shares of common stock by a factor of 10 to 1 with July 1, 2016, as the effective date. Earnings per share (basic) is calculated based on the assumption that the consolidation had been implemented at the beginning of the fiscal year ended December 31, 2016.

Earnings per share (diluted) reflects the potential dilution that could occur if securities were exercised or converted into common stock. Earnings per share (diluted) assumes full conversion of the outstanding convertible notes and bonds at the beginning of the year (or at the time of issuance) with an applicable adjustment for related interest expense, net of tax, and full exercise of outstanding warrants.

Cash dividends per share presented in the accompanying consolidated statement of income are dividends applicable to the respective years, including dividends to be paid after the end of the year.

Cash dividends per share applicable to the period for the fiscal year ended December 31, 2016, comprises interim dividends of ¥4.00 (before the consolidation) and year-end dividends of ¥60.00 (after the consolidation). If the consolidation had been taken into consideration, cash dividends per share applicable to the period for the fiscal year ended December 31, 2016, would be ¥100.00.

From the fiscal year ended December 31, 2017, the Company introduced the Board Benefit Trust (BBT). The shares held by the trust are recorded under net assets as treasury shares. The number of treasury shares excluded from the number of shares issued as of the balance sheet date used for the calculation of equity per share includes the number of shares held by the trust. The number of treasury shares excluded from the weighted-average number of shares issued during the fiscal year used for the calculation of earnings per share includes the number of shares held by the trust.

## Note 3:

### Changes in Presentation (Consolidated Balance Sheet)

Under "Intangible assets," "Customer-related assets," which was previously included in "Other," is now presented separately from the fiscal year ended December 31, 2018, owing to its increased financial materiality.

To reflect this change, ¥3,548 million presented as "Other" under "Intangible assets" in the consolidated balance sheet of the previous fiscal year has been reclassified, with ¥874 million presented as "Customer-related assets" and ¥2,674 million presented as "Other."

## Note 4:

### New Accounting Pronouncements

**Implementation Guidance on Tax Effect Accounting**

- "Implementation Guidance on Tax Effect Accounting" (ASBJ Guidance No. 28, revised on February 16, 2018)
- "Implementation Guidance on Recoverability of Deferred Tax Assets" (ASBJ Guidance No. 26, revised on February 16, 2018)

**(1) Overview**

Implementation Guidances have been reviewed and amended at the following points, deemed necessary in transferring the control over the practical guidelines for tax effect accounting from the Japanese Institute of Certified Public Accountants ("JICPA") to the Accounting Standards Board of Japan (ASBJ), basically following their contents.

(Main accounting treatments reviewed and amended)

- Treatments for taxable temporary differences for investments in subsidiaries within the context of non-consolidated financial statements
- Treatments in determining recoverability of deferred tax assets in a company which was categorized as 'Type 1' according to the guidance

**(2) Date of adoption**

The Company and its domestic consolidated subsidiaries will adopt these revised implementation guidances from the beginning of the fiscal year ending December 31, 2019.

**(3) Impact of the adoption of the revised implementation guidances**

The Company is in the process of measuring the effects of applying these revised implementation guidances in future applicable periods.

**Accounting Standard for Revenue Recognition**

- "Accounting Standard for Revenue Recognition" (ASBJ Statement No. 29, issued on March 30, 2018)
- "Implementation Guidance on Accounting Standard for Revenue Recognition" (ASBJ Guidance No. 30, issued on March 30, 2018)

**(1) Overview**

The International Accounting Standard Board ("IASB") and the Financial Accounting Standard Board ("FASB") jointly developed a comprehensive accounting standard for revenue recognition and issued "Revenue from Contracts with Customers" in May 2014 (IFRS 15 by IASB, and ASU 2014-09 by FASB).

IFRS 15 was applied for annual reporting periods beginning on or after January 1, 2018, and ASU 2014-09 was also applied from annual reporting periods beginning after December 15, 2017. Based on such a situation, the ASBJ developed the comprehensive accounting standard for revenue recognition and the implementation guidance and issued them together.

The basic objective of the ASBJ in developing the accounting standards regarding revenue recognition, was to enhance comparability between financial statements, which is one of the points of convenience of interfacing with IFRS 15. Accordingly, the accounting standard fundamentally incorporates the basic policies of IFRS 15. Also, where there are items that should be considered to reflect the business practices in Japan, alternative policies will be added to the extent that comparability is not lost.

**(2) Date of adoption**

The Company and its domestic consolidated subsidiaries will adopt the issued accounting standard and implementation guidance from the beginning of the fiscal year ending December 31, 2022.

### (3) Impact of the adoption of the accounting standard and implementation guidance

The Company is in the process of measuring the effects of applying the accounting standard and implementation guidance in future applicable periods.

### IFRS 16 Leases
### ASU 2016-02 Leases

### (1) Overview

The IASB issued IFRS 16 Leases, concurrently with the introduction of ASU 2016-02 into the FASB's Accounting Standards Codification. These accounting standards require lessees to recognize a right-of-use asset and a lease liability in the statement of financial position. There are no significant changes for lessors in these accounting standards.

### (2) Date of adoption

Foreign consolidated subsidiaries will adopt IFRS 16 from the beginning of the fiscal year ending December 31, 2019, and ASU 2016-02 from the beginning of the fiscal year ending December 31, 2020.

### (3) Impact of the adoption of the accounting standards

The Company is in the process of measuring the effects of applying the accounting standards in future applicable periods.

## Note 5:
## Additional Information

### Board Benefit Trust (BBT)

With regard to the compensation for executive officers, as well as directors who concurrently serve as executive officers (the "Target Officers"), the Company introduced a performance-based stock compensation plan called Board Benefit Trust (BBT) (the "Plan") from the fiscal year ended December 31, 2017. The purpose of the Plan is to further clarify the linkage between the compensation of the Target Officers, and corporate performance and the value of the Company's shares. The intended result is strengthening the Target Officers' awareness of their contributions to the medium- to long-term improvement of corporate performance and value.

Accounting treatment related to the trust agreement is in accordance with "Practical Solution on Transactions of Delivering the Company's Own Stock to Employees etc. through Trusts" (PITF No. 30, March 26, 2015).

(1) Outline of the transactions

The trust established under the Plan acquires the Company's shares by cash contributed by the Company. The trust provides shares of the Company and the cash equivalent to the market price of the shares of the Company (the "Company's Shares and Cash Benefits") to the Target Officers, in accordance with the Rules of Officer Share Benefit established by the Company. The Target Officers shall in principle receive the Company's Shares and Cash Benefits upon their retirement.

(2) The Company's shares remaining in the trust

The shares remaining in the trust are recorded under net assets as treasury shares at the book value in the trust (excluding incidental costs). The book value and the number of such treasury shares are ¥584 million and 148 thousand as of December 31, 2018, and ¥599 million and 152 thousand as of December 31, 2017, respectively.

## Note 6:
## Cash and Cash Equivalents

Cash and cash equivalents as of December 31, 2018 and 2017, include the following:

| | Millions of yen | |
|---|---|---|
| | **2018** | 2017 |
| Cash and deposits | **¥19,782** | ¥17,883 |
| Less: time deposits and short-term investments which mature over three months after the date of acquisition | **(1,151)** | (232) |
| Cash and cash equivalents | **¥18,631** | ¥17,651 |

## Note 7:

### Investments in Unconsolidated Subsidiaries and Affiliates

Investments in unconsolidated subsidiaries and affiliates as of December 31, 2018 and 2017, include the following:

| | Millions of yen | |
|---|---|---|
| | **2018** | 2017 |
| Investments in stock of unconsolidated subsidiaries and affiliates | **¥53,498** | ¥53,213 |
| Investments in equity of unconsolidated subsidiaries and affiliates | **1,053** | 1,053 |
| Total | **¥54,551** | ¥54,266 |

## Note 8:

### Investment Securities

The carrying amounts and aggregate fair values of available-for-sale securities at December 31, 2018 and 2017, are as follows:

| | Millions of yen | | | |
|---|---|---|---|---|
| | | | | **2018** |
| | Cost | Unrealized gains | Unrealized losses | Fair value |
| Available-for-sale securities: | | | | |
| Stocks | **¥8,338** | **¥2,865** | **¥(718)** | **¥10,485** |
| Total | **¥8,338** | **¥2,865** | **¥(718)** | **¥10,485** |

| | Millions of yen | | | |
|---|---|---|---|---|
| | | | | 2017 |
| | Cost | Unrealized gains | Unrealized losses | Fair value |
| Available-for-sale securities: | | | | |
| Stocks | ¥8,121 | ¥11,437 | ¥(21) | ¥19,537 |
| Total | ¥8,121 | ¥11,437 | ¥(21) | ¥19,537 |

Proceeds from sales of investment securities for the year ended December 31, 2018, are ¥4,150 million. Gross realized gains on these sales, computed on the moving-average cost basis, are ¥3,270 million for the year ended December 31, 2018.

## Note 9:

### Property, Plant and Equipment

Accumulated depreciation on property, plant and equipment as of December 31, 2018 and 2017, is ¥555,347 million and ¥559,793 million, respectively.

## Note 10:

### Impairment of Long-Lived Assets

There was no impairment loss of long-lived assets for the fiscal year ended December 31, 2018.

Impairment losses on long-lived assets for the fiscal year ended December 31, 2017, for each asset group are as follows:

| | | | Millions of yen |
|---|---|---|---|
| | | | 2017 |
| Used status | Category of assets | Location | Allocated impairment loss |
| Factory assets in use | Machinery, equipment and vehicles, buildings and structures, and other | India | ¥200 |
| Idle assets | Buildings and structures, machinery, equipment and vehicles, and other | Ibaraki, Japan | 34 |
| Total | | | ¥234 |

The carrying amount of the factory assets in use was reduced to its recoverable amount because the recoverable amount is less than the carrying amount. The carrying amount of the idle assets was also reduced to its recoverable amount because the assets are no longer used.

The book value of factory assets in use has been lowered to the recoverable amount. All the book values of idle assets have been recognized as impairment loss.

## Note 11:

## Short-Term Loans Payable and Long-Term Loans Payable

Information with respect to short-term loans payable at December 31, 2018 and 2017, is as follows:

The average interest rate for the fiscal years ended December 31, 2018 and 2017, is 1.92% and 2.19%, respectively, for short-term loans payable, and -0.01% and -0.01%, respectively, for commercial papers.

Bonds payable, long-term loans payable and lease obligations at December 31, 2018 and 2017, comprise the following:

| | Millions of yen | |
|---|---|---|
| | **2018** | 2017 |
| 0.53% Japanese yen notes due 2022 | **¥ 10,000** | ¥ 10,000 |
| 1.00% Japanese yen notes due 2025 | **10,000** | 10,000 |
| 0.95% Japanese yen notes due 2036 | **5,000** | 5,000 |
| 0.36% Japanese yen notes due 2026 | **5,000** | 5,000 |
| 0.42% Japanese yen notes due 2027 | **10,000** | 10,000 |
| 0.15% Japanese yen notes due 2022 | **10,000** | 10,000 |
| 0.15% Japanese yen notes due 2023 | **10,000** | — |
| Loans due 2019–2028, with an average interest rate of 0.90% | **169,583** | 149,694 |
| Lease obligations | **4,896** | 4,602 |
| Subtotal | **234,479** | 204,296 |
| Less: current portion of long-term loans payable | **(49,792)** | (27,677) |
| Less: current portion of bonds | **—** | — |
| Less: lease obligations—current | **(667)** | (557) |
| Total | **¥184,020** | ¥176,062 |

The annual maturities of bonds payable, long-term loans payable and lease obligations for the fiscal years subsequent to December 31, 2018, are as follows:

| | Millions of yen |
|---|---|
| 2019 | **¥ 50,459** |
| 2020 | **24,214** |
| 2021 | **40,354** |
| 2022 | **47,188** |
| 2023 | **15,498** |
| Thereafter | **56,766** |
| Total | **¥234,479** |

The amounts of assets pledged as collateral and secured borrowings and loans at December 31, 2018, comprise the following:

| | Millions of yen |
|---|---|
| Assets pledged as collateral: | |
| Cash and deposits | **¥ 4** |
| Notes and accounts receivable—trade | **3,792** |
| Inventories | **2,208** |
| Property, plant and equipment | **559** |
| Total | **¥6,563** |
| Secured borrowings and loans: | |
| Short-term loans payable | **¥ 90** |
| Total | **¥ 90** |

## Note 12:

## Retirement and Pension Plans

### (1) Overview of adopted retirement and pension plans

The Company and a number of domestic consolidated subsidiaries have defined benefit pension plans such as a cash balance–style pension plan and retirement plans, and defined contribution pension plans. Some foreign consolidated subsidiaries maintain defined benefit pension plans and defined contribution pension plans. The Company contributes certain available-for-sale securities to the employee retirement benefit trust.

### (2) Defined benefit pension plans (including multi-employer plan)

**Changes in defined benefit obligations**

| | Millions of yen | |
|---|---|---|
| | Domestic plans | Foreign plans |
| As of January 1, 2018 | **¥93,561** | **¥153,835** |
| Service cost | **2,211** | **693** |
| Interest cost | **739** | **3,918** |
| Actuarial gains and losses | **(106)** | **(9,072)** |
| Benefits paid | **(4,727)** | **(6,148)** |
| Past service cost | **—** | **(69)** |
| Exchange translation differences | **—** | **(8,386)** |
| Other | **—** | **295** |
| As of December 31, 2018 | **¥91,678** | **¥135,066** |

*Note: Some of the domestic consolidated subsidiaries have adopted a simplified method for the calculation of retirement benefits.*

| | Millions of yen | |
|---|---|---|
| | Domestic plans | Foreign plans |
| As of January 1, 2017 | ¥95,274 | ¥146,257 |
| Service cost | 2,225 | 717 |
| Interest cost | 752 | 4,661 |
| Actuarial gains and losses | (70) | 4,767 |
| Benefits paid | (4,620) | (6,342) |
| Past service cost | — | 8 |
| Exchange translation differences | — | 3,697 |
| Other | — | 70 |
| As of December 31, 2017 | ¥93,561 | ¥153,835 |

*Note: Some of the domestic consolidated subsidiaries have adopted a simplified method for the calculation of retirement benefits.*

**Changes in plan assets**

| | Millions of yen | |
|---|---|---|
| | Domestic plans | Foreign plans |
| As of January 1, 2018 | **¥ 125,464** | **¥ 132,566** |
| Expected return on plan assets | **3,206** | **6,163** |
| Actuarial gains and losses | **(11,247)** | **(12,992)** |
| Contributions by the employer | **1,537** | **4,703** |
| Benefits paid | **(4,651)** | **(5,964)** |
| Exchange translation differences | **—** | **(7,515)** |
| Other | **—** | **44** |
| As of December 31, 2018 | **¥ 114,309** | **¥ 117,005** |

| | Millions of yen | |
|---|---|---|
| | Domestic plans | Foreign plans |
| As of January 1, 2017 | ¥121,278 | ¥120,255 |
| Expected return on plan assets | 3,051 | 6,295 |
| Actuarial gains and losses | 4,641 | 6,109 |
| Contributions by the employer | 1,012 | 2,794 |
| Benefits paid | (4,518) | (6,153) |
| Exchange translation differences | — | 3,214 |
| Other | — | 52 |
| As of December 31, 2017 | ¥125,464 | ¥132,566 |

**Reconciliation of defined benefit obligations and plan assets on retirement benefits recognized in the consolidated balance sheet**

| | Millions of yen | |
|---|---|---|
| | 2018 | |
| | Domestic plans | Foreign plans |
| Funded defined benefit obligations | **¥ 90,473** | **¥ 134,098** |
| Plan assets | **(114,309)** | **(117,005)** |
| Subtotal | **(23,836)** | **17,093** |
| Unfunded defined benefit obligations | **1,205** | **968** |
| Net amount of liabilities and assets recognized in consolidated balance sheet | **¥ (22,631)** | **¥ 18,061** |
| Liabilities (net defined benefit liability) | **¥ 1,630** | **¥ 18,889** |
| Assets (net defined benefit asset) | **(24,261)** | **(828)** |
| Net amount of liabilities and assets recognized in consolidated balance sheet | **¥ (22,631)** | **¥ 18,061** |

| | Millions of yen | |
|---|---|---|
| | 2017 | |
| | Domestic plans | Foreign plans |
| Funded defined benefit obligations | ¥ 92,418 | ¥ 152,831 |
| Plan assets | (125,464) | (132,566) |
| Subtotal | (33,046) | 20,265 |
| Unfunded defined benefit obligations | 1,143 | 1,004 |
| Net amount of liabilities and assets recognized in consolidated balance sheet | ¥ (31,903) | ¥ 21,269 |
| Liabilities (net defined benefit liability) | ¥ 1,366 | ¥ 21,408 |
| Assets (net defined benefit asset) | (33,269) | (139) |
| Net amount of liabilities and assets recognized in consolidated balance sheet | ¥ (31,903) | ¥ 21,269 |

**Retirement benefit expenses and its breakdowns**

| | Millions of yen | |
|---|---|---|
| | 2018 | |
| | Domestic plans | Foreign plans |
| Service cost | **¥ 2,211** | **¥ 693** |
| Interest cost | **739** | **3,918** |
| Expected return on plan assets | **(3,206)** | **(6,163)** |
| Recognition of actuarial gains and losses | **(678)** | **1,303** |
| Amortization of past service cost | **—** | **(69)** |
| Total | **¥ (934)** | **¥ (318)** |

*Note: Other than these retirement benefit expenses, severance costs in the consolidated statement of income include retiree premium benefit.*

| | Millions of yen | |
|---|---|---|
| | 2017 | |
| | Domestic plans | Foreign plans |
| Service cost | ¥ 2,225 | ¥ 717 |
| Interest cost | 752 | 4,661 |
| Expected return on plan assets | (3,051) | (6,295) |
| Recognition of actuarial gains and losses | (264) | 1,472 |
| Amortization of past service cost | — | 8 |
| Total | ¥ (338) | ¥ 563 |

*Note: Other than these retirement benefit expenses, severance costs in the consolidated statement of income include retiree premium benefit.*

**Past service cost and actuarial gains and losses**

The past service cost and actuarial gains and losses recognized in accumulated other comprehensive income as remeasurements of defined benefit plans (amount before income tax effect) for the fiscal years ended December 31, 2018 and 2017, are as follows:

| | Millions of yen | |
|---|---|---|
| | **2018** | |
| | Domestic plans | Foreign plans |
| Past service cost | **¥ —** | **¥ (876)** |
| Actuarial gains and losses | **(11,819)** | **(278)** |
| Total | **¥(11,819)** | **¥(1,154)** |

| | Millions of yen | |
|---|---|---|
| | 2017 | |
| | Domestic plans | Foreign plans |
| Past service cost | ¥ — | ¥ 4 |
| Actuarial gains and losses | 4,448 | 1,901 |
| Total | ¥4,448 | ¥1,905 |

**Unrecognized past service cost and unrecognized actuarial gains and losses**

The unrecognized past service cost and unrecognized actuarial gains and losses recognized in accumulated other comprehensive income as remeasurements of defined benefit plans (amount before income tax effect) for the fiscal years ended December 31, 2018 and 2017, are as follows:

| | Millions of yen | |
|---|---|---|
| | **2018** | |
| | Domestic plans | Foreign plans |
| Unrecognized past service cost | **¥ —** | **¥ (747)** |
| Unrecognized actuarial gains and losses | **(1,795)** | **(44,827)** |
| Total | **¥(1,795)** | **¥(45,574)** |

| | Millions of yen | |
|---|---|---|
| | 2017 | |
| | Domestic plans | Foreign plans |
| Unrecognized past service cost | ¥ — | ¥ 129 |
| Unrecognized actuarial gains and losses | 10,024 | (44,549) |
| Total | ¥10,024 | ¥(44,420) |

### Major breakdown of plan assets

| | 2018 | |
|---|---|---|
| | Domestic plans | Foreign plans |
| Equity securities | **49.6%** | **24.8%** |
| Debt securities | **24.9%** | **56.3%** |
| Other | **25.5%** | **18.9%** |
| Total | **100.0%** | **100.0%** |

*Note: 23.5% of the assets of the domestic plans are available-for-sale securities contributed to the employee retirement benefit trust.*

| | 2017 | |
|---|---|---|
| | Domestic plans | Foreign plans |
| Equity securities | 51.8% | 29.0% |
| Debt securities | 22.0% | 58.0% |
| Other | 26.2% | 13.0% |
| Total | 100.0% | 100.0% |

*Note: 27.5% of the assets of the domestic plans are available-for-sale securities contributed to the employee retirement benefit trust.*

### Actuarial assumptions

| | 2018 | |
|---|---|---|
| | Domestic plans | Foreign plans |
| Discount rate | **0.8%** | **1.3%–4.4%** |
| Expected return rate on plan assets | **3.0%** | **4.9%–6.0%** |
| Expected rate of increase in salary | **3.1%** | **2.0%–3.5%** |

*Note: Expected return rate on plan assets is determined by considering the current and anticipated future portfolio of plan assets and current and anticipated future long-term performance of individual asset classes that comprise the funds' asset mix.*

| | 2017 | |
|---|---|---|
| | Domestic plans | Foreign plans |
| Discount rate | 0.8% | 1.2%–3.7% |
| Expected return rate on plan assets | 3.0% | 5.0%–6.2% |
| Expected rate of increase in salary | 3.3% | 2.0%–3.5% |

*Note: Expected return rate on plan assets is determined by considering the current and anticipated future portfolio of plan assets and current and anticipated future long-term performance of individual asset classes that comprise the funds' asset mix.*

### (3) Defined contribution pension plans

The required contributions borne by the Company and a number of consolidated subsidiaries in relation to the defined contribution pension plans for the fiscal years ended December 31, 2018 and 2017, are ¥1,940 million and ¥2,042 million, respectively.

## Note 13:
## Net Assets

Japanese companies are subject to the Companies Act of Japan (the "Companies Act"). The significant provisions in the Companies Act that affect financial and accounting matters are summarized below:

### (1) Dividends

Under the Companies Act, companies can pay dividends at any time during the fiscal year in addition to the year-end dividend upon resolution at the shareholders' meeting. For companies that meet certain criteria such as: (a) having a board of directors, (b) having independent auditors, (c) having a board of corporate auditors and (d) the term of service of the directors being prescribed as one year rather than the two years of a normal term by its articles of incorporation, the board of directors may declare dividends (except for dividends in kind) at any time during the fiscal year if the company has prescribed so in its articles of incorporation. The Company meets all the above criteria.

The Companies Act permits companies to distribute dividends in kind (non-cash assets) to shareholders subject to a certain limitation and additional requirements.

Semiannual interim dividends may also be paid once a year upon resolution by the board of directors if the articles of incorporation of the company so stipulate. The Companies Act provides certain limitations on the amounts available for dividends or the purchase of treasury shares. The limitation is defined as the amount

available for distribution to the shareholders, but the amount of net assets after dividends must be maintained at no less than ¥3 million.

**(2) Increases/decreases and transfer of common stocks, reserve and surplus**

The Companies Act requires that an amount equal to 10% of dividends must be appropriated as a legal reserve (a component of retained earnings) or as additional paid-in capital (a component of capital surplus) depending on the equity account charged upon the payment of such dividends until the total of the aggregate amount of legal reserve and additional paid-in capital equals 25% of the common stock. Under the Companies Act, the total amount of additional paid-in capital and legal reserve may be reversed without limitation. The Companies Act also provides that common stock, legal reserve, additional paid-in capital, other capital surplus and retained earnings can be transferred among the accounts under certain conditions upon resolution of the shareholders.

**(3) Treasury shares and treasury stock acquisition rights**

The Companies Act also provides for companies to purchase treasury shares and dispose of such treasury shares by resolution of the board of directors. The amount of treasury shares purchased cannot exceed the amount available for distribution to the shareholders which is determined by a specific formula.

Under the Companies Act, stock acquisition rights, which were previously presented as a liability, are now presented as a separate component of equity.

The Companies Act also provides that companies can purchase both treasury stock acquisition rights and treasury shares. Such treasury stock acquisition rights are presented as a separate component of equity or deducted directly from stock acquisition rights.

## Note 14: Capital Stock

The total amount of capital stock authorized as of December 31, 2018 and December 31, 2017, is 150,000,000 shares.

The total amount of capital stock issued as of December 31, 2018 and December 31, 2017, is 95,156,904 shares.

## Note 15: Treasury Shares

The number of treasury shares as of December 31, 2018 and 2017, are as follows:

Shares

| | 2018 | | | |
|---|---|---|---|---|
| | As of January 1, 2018 | Increase in FY2018 | Decrease in FY2018 | As of December 31, 2018 |
| Treasury shares: | | | | |
| Common stock | **512,293** | **2,642** | **3,900** | **511,035** |
| Total | **512,293** | **2,642** | **3,900** | **511,035** |

*Notes: 1. The shares held by the Board Benefit Trust (BBT) (147,800 shares) are included in the number of treasury shares.*
*2. The increase of treasury shares of common stock (2,642 shares) was due to the purchase of odd-lot shares.*
*3. The decrease of treasury shares of common stock (3,900 shares) was due to the benefit of the Company's shares by the Board Benefit Trust (BBT).*

Shares

| | 2017 | | | |
|---|---|---|---|---|
| | As of January 1, 2017 | Increase in FY2017 | Decrease in FY2017 | As of December 31, 2017 |
| Treasury shares: | | | | |
| Common stock | 356,552 | 155,741 | — | 512,293 |
| Total | 356,552 | 155,741 | — | 512,293 |

*Notes: 1. The shares held by the Board Benefit Trust (BBT) (151,700 shares) are included in the number of treasury shares.*
*2. The increase of treasury shares of common stock (155,741 shares) was due to the purchase of odd-lot shares (4,041 shares) and the acquisition of the Company's shares by the Board Benefit Trust (BBT) (151,700 shares).*

## Note 16:

## Income Taxes

The differences between the normal effective statutory tax rate in Japan and the actual effective tax rate for the fiscal years ended December 31, 2018 and 2017, are as follows:

| | 2018 | 2017 |
|---|---|---|
| Normal effective statutory tax rate in Japan | **30.9%** | 30.9% |
| Adjustments: | | |
| Valuation allowance change | **(0.6)%** | (6.3)% |
| Tax rate differences | **(4.6)%** | (5.0)% |
| Equity in earnings of affiliates | **(2.4)%** | (2.2)% |
| Entertainment and other non-deductible expenses | **2.4%** | 1.5% |
| Elimination of intercompany dividends income | **12.0%** | 14.8% |
| Dividends income and other non-taxable income | **(9.8)%** | (9.4)% |
| State, provincial, municipal and local taxes | **0.8%** | 0.7% |
| Tax credit for research and development and others | **(1.7)%** | (2.7)% |
| Adoption of FIN48 | **—%** | (0.3)% |
| Tax credit for the Special Tax Law for the March 11 Earthquake | **(0.8)%** | (1.6)% |
| Other | **4.6%** | 5.0% |
| Actual effective tax rate | **30.8%** | 25.4% |

The tax effects of significant temporary differences and loss carryforwards, which resulted in deferred tax assets and liabilities, as of December 31, 2018 and 2017, are as follows:

| | Millions of yen | |
|---|---|---|
| | 2018 | 2017 |
| Deferred tax assets: | | |
| Inventories | **¥ 3,407** | ¥ 3,339 |
| Property, plant and equipment | **4,155** | 4,371 |
| Intangible assets | **4,470** | 5,815 |
| Research and development costs | **4,736** | 4,711 |
| Allowance for doubtful accounts | **1,788** | 1,857 |
| Provision for bonuses | **1,917** | 2,112 |
| Net defined benefit liability | **5,464** | 5,881 |
| Unrealized gain | **900** | 992 |
| Net operating loss carryforwards | **18,974** | 20,816 |
| Other | **9,176** | 10,429 |
| Subtotal | **54,987** | 60,323 |
| Less: valuation allowance | **(12,084)** | (13,576) |
| Total | **42,903** | 46,747 |
| Deferred tax liabilities: | | |
| Property, plant and equipment | **(3,120)** | (3,359) |
| Net defined benefit asset | **(1,728)** | (3,231) |
| Contribution of securities to employee retirement benefit trust | **(1,277)** | (1,510) |
| Deferred income taxes related to gains from property, plant and equipment | **(2,791)** | (2,883) |
| Valuation difference on available-for-sale securities | **(665)** | (3,442) |
| Other | **(2,816)** | (2,929) |
| Total | **(12,397)** | (17,354) |
| Net deferred tax assets | **¥ 30,506** | ¥ 29,393 |

## Note 17:

### Research and Development Costs

Research and development costs charged to income for the fiscal years ended December 31, 2018 and 2017, are ¥12,923 million and ¥12,427 million, respectively.

## Note 18:

### Leases

**Operating leases**

Future minimum rental payments under non-cancellable operating leases at December 31, 2018 and 2017, are as follows:

| | Millions of yen | |
|---|---|---|
| | **2018** | 2017 |
| Due within one year | **¥ 2,570** | ¥ 2,652 |
| Due after one year | **7,676** | 8,270 |
| Total | **¥10,246** | ¥10,922 |

## Note 19:

### Financial Instruments

**Group policy for financial instruments**

The Group manages funds with safe and secure financial assets. Means of financings include direct financing such as the issuance of bonds and commercial papers and liquidation of receivables, as well as indirect financing such as short- and long-term bank borrowings, the terms of which are determined based on financial market conditions and account balances at the time.

**Nature and extent of risks arising from financial instruments**

Receivables such as trade notes and accounts receivable are exposed to customer credit risk. In addition, some of such receivables are denominated in foreign currencies and are exposed to the market risk of fluctuation in foreign currency exchange rates. Investment securities, mainly the stocks of customers and suppliers, are exposed to the risk of market price fluctuations.

Payment terms of payables, such as trade notes and accounts payable, are less than one year. In addition, some of such payables are denominated in foreign currencies and are exposed to the market risk of fluctuation in foreign currency exchange rates.

Funds needed for operations are mainly procured as short-term loans payable, whereas funds needed for capital expenditure and investment are mainly procured as long-term loans payable, bonds payable and lease obligations with regard to finance lease transactions. A part of such bank loans, bonds and lease obligations are exposed to market risks from changes in variable interest rates. Trade accounts payable and loans payable of the Company are also exposed to liquidity risk that the Company cannot meet its contractual obligations in full on maturity dates.

**Risk management for financial instruments**

The Company manages its credit risk from trade notes and accounts receivable on the basis of internal guidelines, which include the monitoring of payment terms and balances of customers by the sales and business administration departments to identify the default risk of customers at an early stage. The consolidated subsidiaries of the Company manage the exposure to credit risk on their own in accordance with their internal guidelines. Investment securities are managed by monitoring market values, the financial position of issuers and considering the relationship with customers and suppliers on a regular basis. The Group also tries to mitigate liquidity risk by arranging lines of credit with financial institutions, along with adequate financial planning.

## Fair values of financial instruments

The following tables present the carrying amounts and the fair values of financial instruments at December 31, 2018 and 2017. Financial instruments whose fair values are not reliably measured are excluded from the tables below.

Millions of yen

| | 2018 | | |
|---|---|---|---|
| | Carrying amount | Fair value | Difference |
| Assets: | | | |
| Cash and deposits | ¥ 19,782 | ¥ 19,782 | ¥ — |
| Notes and accounts receivable—trade | 209,763 | 209,763 | — |
| Investment securities | | | |
| Stocks of subsidiaries and affiliates | 27,497 | 25,120 | (2,377) |
| Other | 10,485 | 10,485 | — |
| Total | ¥267,527 | ¥265,150 | ¥(2,377) |
| Liabilities: | | | |
| Notes and accounts payable—trade | ¥118,554 | ¥118,554 | ¥ — |
| Short-term loans payable | 29,986 | 29,986 | — |
| Current portion of long-term loans payable | 49,792 | 49,817 | 25 |
| Lease obligations (current) | 667 | 667 | — |
| Income taxes payable | 2,843 | 2,843 | — |
| Bonds payable | 60,000 | 60,648 | 648 |
| Long-term loans payable | 119,791 | 120,091 | 300 |
| Lease obligations (non-current) | 4,229 | 4,565 | 336 |
| Total | ¥385,862 | ¥387,171 | ¥ 1,309 |
| Derivative financial instruments: (Note) | | | |
| Hedge accounting—not applied | ¥ 152 | ¥ 152 | ¥ — |
| Hedge accounting—applied | 19 | 19 | — |
| Total | ¥ 171 | ¥ 171 | ¥ — |

*Note: Figures are net of debts and credits that arise from derivative financial instruments. Net debt amounts are indicated in parentheses.*

| | Millions of yen | | |
|---|---|---|---|
| | | | 2017 |
| | Carrying amount | Fair value | Difference |
| Assets: | | | |
| Cash and deposits | ¥ 17,883 | ¥ 17,883 | ¥ — |
| Notes and accounts receivable—trade | 226,968 | 226,968 | — |
| Investment securities | | | |
| Stocks of subsidiaries and affiliates | 27,955 | 35,436 | 7,481 |
| Other | 19,537 | 19,537 | — |
| Total | ¥292,343 | ¥299,824 | ¥7,481 |
| Liabilities: | | | |
| Notes and accounts payable—trade | ¥117,199 | ¥117,199 | ¥ — |
| Short-term loans payable | 61,385 | 61,385 | — |
| Current portion of long-term loans payable | 27,677 | 27,690 | 13 |
| Lease obligations (current) | 557 | 557 | — |
| Income taxes payable | 4,793 | 4,793 | — |
| Bonds payable | 50,000 | 50,395 | 395 |
| Long-term loans payable | 122,017 | 122,141 | 124 |
| Lease obligations (non-current) | 4,045 | 4,414 | 369 |
| Total | ¥387,673 | ¥388,574 | ¥ 901 |
| Derivative financial instruments: (Note) | | | |
| Hedge accounting—not applied | ¥ (394) | ¥ (394) | ¥ — |
| Hedge accounting—applied | (4) | (4) | — |
| Total | ¥ (398) | ¥ (398) | ¥ — |

*Note: Figures are net of debts and credits that arise from derivative financial instruments. Net debt amounts are indicated in parentheses.*

The valuation techniques used to estimate the fair values of financial instruments and information on the marketable securities and derivative financial instruments are as follows:

## Assets

***Cash and deposits and notes and accounts receivable–trade***

The fair values of cash and deposits and notes and accounts receivable–trade approximate their carrying amounts as these amounts are settled in a short period of time.

***Investment securities***

The fair values of investment securities are measured at the quoted market price on the stock exchange.

## Liabilities

***Notes and accounts payable–trade, short-term loans payable and income taxes payable***

The fair values of these accounts approximate their carrying amounts as these amounts are settled in a short period of time.

***Current portion of long-term loans payable and long-term loans payable***

For long-term loans payable bearing a floating interest rate, the fair values of those subject to special treatment of interest rate swaps are based on present value by totaling the amount of principal and interest, together with related interest rate swaps, discounted by the interest rate that would apply if equivalent long-term loans were newly entered into. The fair values of other long-term loans payable for which a floating interest rate is applied approximate their carrying amounts, due to the fact that the market rate of interest is quickly factored in while credit status of the Company remains unchanged.

On the other hand, the fair values of long-term loans payable for which a fixed interest rate is applied are determined by discounting the cash flows related to the long-term loans payable. The discount rate applied for the calculation above is the interest rate that may be currently available to the Group for loans payable with similar terms and conditions.

***Lease obligations (current) and lease obligations (non-current)***

The fair values of these accounts are determined by discounting the cash flows related to the lease obligations. The discount rate applied for the calculation above is the interest rate that may be currently available to the Group for lease obligations with similar terms and conditions.

***Bonds payable***

The fair values are measured at the quoted market prices.

**Derivative financial instruments**

Please see Note 20 "Derivative Financial Instruments" for more information.

***Financial instruments whose fair values are not reliably measured***

There are no market prices for non-listed stocks and others (carrying amounts as of December 31, 2018 and 2017, are ¥29,541 million and ¥29,375 million, respectively) whose future cash flows cannot be estimated. The fair values of such non-listed stocks and others are not reliably determinable and thus excluded from investment securities.

***Redemption schedule for financial assets and securities***

The redemption schedules for financial assets and securities with contractual maturities as of December 31, 2018 and 2017, are summarized as follows:

Millions of yen

| | 2018 | | | |
|---|---|---|---|---|
| | Due in 1 year or less | Due after 1 year through 5 years | Due after 5 years through 10 years | Due after 10 years |
| Notes and accounts receivable—trade | **¥209,763** | **¥—** | **¥—** | **¥—** |
| Total | **¥209,763** | **¥—** | **¥—** | **¥—** |

Millions of yen

| | 2017 | | | |
|---|---|---|---|---|
| | Due in 1 year or less | Due after 1 year through 5 years | Due after 5 years through 10 years | Due after 10 years |
| Notes and accounts receivable—trade | ¥226,968 | ¥— | ¥— | ¥— |
| Total | ¥226,968 | ¥— | ¥— | ¥— |

***Repayment schedule for bonds payable, long-term loans payable and other interest-bearing debt***

The repayment schedules for bonds payable, long-term loans payable and other interest-bearing debt with contractual maturities as of December 31, 2018 and 2017, are summarized as follows:

Millions of yen

| | 2018 | | | |
|---|---|---|---|---|
| | Due in 1 year or less | Due after 1 year through 5 years | Due after 5 years through 10 years | Due after 10 years |
| Short-term loans payable | **¥29,986** | **¥ —** | **¥ —** | **¥ —** |
| Current portion of long-term loans payable | **49,792** | **—** | **—** | **—** |
| Lease obligations (current) | **667** | **—** | **—** | **—** |
| Bonds payable | **—** | **30,000** | **25,000** | **5,000** |
| Long-term loans payable | **—** | **94,823** | **24,968** | **—** |
| Lease obligations (non-current) | **—** | **2,431** | **1,798** | **—** |
| Total | **¥80,445** | **¥127,254** | **¥51,766** | **¥5,000** |

Millions of yen

| | 2017 | | | |
|---|---|---|---|---|
| | Due in 1 year or less | Due after 1 year through 5 years | Due after 5 years through 10 years | Due after 10 years |
| Short-term loans payable | ¥61,385 | ¥ — | ¥ — | ¥ — |
| Current portion of long-term loans payable | 27,677 | — | — | — |
| Lease obligations (current) | 557 | — | — | — |
| Bonds payable | — | 20,000 | 25,000 | 5,000 |
| Long-term loans payable | — | 112,017 | 10,000 | — |
| Lease obligations (non-current) | — | 1,925 | 2,120 | — |
| Total | ¥89,619 | ¥133,942 | ¥37,120 | ¥5,000 |

## Note 20:

## Derivative Financial Instruments

The Group has entered into various foreign currency forward contracts, currency options and swaps, interest rate swaps and commodity swaps.

Foreign currency forward contracts and currency options and swaps are entered into to hedge the effects of exchange rate changes on receivables and payables or anticipated transactions denominated in foreign currencies. Interest rate swaps are entered into to hedge the effects of interest rate changes and to reduce financing cost. Commodity swaps are entered into to hedge the effects of commodity price changes of fuel. Loans denominated in foreign currencies are entered into to hedge a part of risks associated with the fluctuations of exchange rates for investments in foreign entities.

The Group does not use derivative instruments for trading or speculative purposes. Derivative transactions performed by the Group have risks due to fluctuations of exchange rates, interest rates and other factors.

Because these transactions are executed with creditworthy financial institutions, the Group does not anticipate the likelihood of any losses resulting from default by the counterparties to these agreements.

Internal regulation for managing derivative transactions has been established for the purpose of risk control in the Company, and all derivative transactions are performed under this regulation.

The execution of derivative transactions is carried out by the Company's finance department, and the management of risk is monitored by the Company's accounting department. Transactions are periodically reported to the board of directors by the officer in charge of the Finance and Accounting Division.

Consolidated subsidiaries execute transactions in accordance with their regulations for derivative management and periodically report the results of those transactions to the Company.

Derivative transactions to which hedge accounting is not applied at December 31, 2018 and 2017

(1) Currency related

Millions of yen

| | 2018 | | | |
|---|---|---|---|---|
| | Contract/notional amount | Contract/notional amount due after one year | Fair value | Unrealized gain/loss |
| Currency options: (Note 1) | | | | |
| Selling | | | | |
| Euro | **¥ 1,205** | **¥—** | **¥(14)** | **¥(14)** |
| Buying | | | | |
| U.S.$ | **1,252** | **—** | **37** | **37** |
| Other | **865** | **—** | **4** | **4** |
| Foreign currency forward contracts: (Note 2) | | | | |
| Selling | | | | |
| Russian ruble | **2,736** | **—** | **106** | **106** |
| Colombian peso | **1,549** | **—** | **18** | **18** |
| Canadian $ | **1,273** | **—** | **20** | **20** |
| Other | **380** | **—** | **(8)** | **(8)** |
| Buying | | | | |
| U.S.$ | **3,878** | **—** | **(14)** | **(14)** |
| Other | **394** | **—** | **3** | **3** |
| Total | **¥13,532** | **¥—** | **¥152** | **¥152** |

*Notes: 1. The fair values of currency options are measured using the quoted price obtained from financial institutions. Currency options used are called collar options, which effectively limit the risk arising from the changes in exchange rate by the combination of buying call options and selling put options, or selling call options and buying put options.*

*2. The fair values of foreign currency forward contracts are measured using the forward quotation.*

Millions of yen

| | 2017 | | | |
|---|---|---|---|---|
| | Contract/notional amount | Contract/notional amount due after one year | Fair value | Unrealized gain/loss |
| Currency swaps: (Note 1) | | | | |
| (Payment in H.K.$ and receipt in U.S.$) | ¥ 826 | ¥— | ¥ 12 | ¥ 12 |
| Other | 437 | — | 4 | 4 |
| Currency options: (Note 1) | | | | |
| Selling | | | | |
| Euro | 603 | — | (5) | (5) |
| Buying | | | | |
| U.S.$ | 6,578 | — | (118) | (118) |
| Euro | 1,124 | — | 2 | 2 |
| Foreign currency forward contracts: (Note 2) | | | | |
| Selling | | | | |
| Russian ruble | 5,812 | — | (39) | (39) |
| Colombian peso | 1,724 | — | 11 | 11 |
| Canadian $ | 1,586 | — | (108) | (108) |
| Other | 1,486 | — | (24) | (24) |
| Buying | | | | |
| U.S.$ | 2,836 | — | (101) | (101) |
| Other | 291 | — | (28) | (28) |
| Total | ¥23,303 | ¥— | ¥(394) | ¥(394) |

*Notes: 1. The fair values of currency swaps and currency options are measured using the quoted price obtained from financial institutions. Currency options used are called collar options, which effectively limit the risk arising from the changes in exchange rate by the combination of buying call options and selling put options, or selling call options and buying put options.*

*2. The fair values of foreign currency forward contracts are measured using the forward quotation.*

Derivative transactions to which hedge accounting is applied at December 31, 2018 and 2017

(1) Currency related

Millions of yen

| | Hedged item | 2018 Contract/notional amount | 2018 Contract/notional amount due after one year | 2018 Fair value |
|---|---|---|---|---|
| Foreign currency forward contracts: (Note 1) | | | | |
| Selling | | | | |
| U.S.$ | Forecast transaction | ¥ 391 | ¥— | ¥ 9 |
| Other | | 338 | — | 7 |
| Buying | | | | |
| U.S.$ | Accounts payable—trade | 78 | — | (1) |
| Foreign currency forward contracts: (Notes 1 and 2) | | | | |
| Selling | | | | |
| U.S.$ | Accounts receivable—trade | 2,552 | — | |
| Other | | 540 | — | |
| Total | | ¥3,899 | ¥— | ¥15 |

*Notes: 1. The fair values of foreign currency forward contracts are measured using the quoted price obtained from financial institutions.*

*2. Exchange contracts appropriated to specific debts and credits are settled together with either accounts receivable–trade, loans payable or accounts payable–trade subject to hedged transaction. Accordingly, the fair values of such exchange contracts are reflected in accounts receivable–trade, loans payable or accounts payable–trade.*

Millions of yen

| | Hedged item | 2017 Contract/notional amount | 2017 Contract/notional amount due after one year | 2017 Fair value |
|---|---|---|---|---|
| Foreign currency forward contracts: (Note 1) | | | | |
| Selling | | | | |
| U.S.$ | Forecast transaction | ¥ 1,582 | ¥— | ¥ 9 |
| Other | | 263 | — | (2) |
| Buying | | | | |
| U.S.$ | Accounts payable—trade | 113 | — | (1) |
| Other | | 14 | — | 0 |
| Foreign currency forward contracts: (Notes 1 and 2) | | | | |
| Selling | | | | |
| U.S.$ | Accounts receivable—trade | 3,094 | — | |
| Other | | 356 | — | |
| Buying | | | | |
| U.S.$ | Loans payable and Accounts payable—trade | 1,379 | — | |
| Chinese yuan | | 1,351 | — | |
| Currency swaps: (Notes 1 and 2) | | | | |
| (Payment in Japanese yen and receipt in U.S.$) | Loans payable | 36,643 | — | |
| Total | | ¥44,795 | ¥— | ¥ 6 |

*Notes: 1. The fair values of currency swaps and foreign currency forward contracts are measured using the quoted price obtained from financial institutions.*

*2. Exchange contracts and currency swaps appropriated to specific debts and credits are settled together with either accounts receivable –trade, loans payable or accounts payable–trade subject to hedged transaction. Accordingly, the fair values of such exchange contracts are reflected in accounts receivable–trade, loans payable or accounts payable–trade.*

(2) Interest related

Millions of yen

| | Hedged item | 2018 Contract/notional amount | 2018 Contract/notional amount due after one year | 2018 Fair value |
|---|---|---|---|---|
| Interest rate swaps: (Note) (Fixed rate payment, floating rate receipt) | Loans payable | **¥62,596** | **¥46,559** | |
| Total | | **¥62,596** | **¥46,559** | **¥—** |

*Note: If interest rate swaps qualify for hedge accounting and meet certain specific criteria, they are settled together with loans payable subject to hedged transaction. Accordingly, the fair values of such interest rate swaps are reflected in loans payable.*

Millions of yen

| | Hedged item | 2017 Contract/notional amount | 2017 Contract/notional amount due after one year | 2017 Fair value |
|---|---|---|---|---|
| Interest rate swaps: (Note) (Fixed rate payment, floating rate receipt) | Loans payable | ¥47,540 | ¥36,270 | |
| Total | | ¥47,540 | ¥36,270 | ¥— |

*Note: If interest rate swaps qualify for hedge accounting and meet certain specific criteria, they are settled together with loans payable subject to hedged transaction. Accordingly, the fair values of such interest rate swaps are reflected in loans payable.*

(3) Commodity related

Millions of yen

| | Hedged item | 2018 Contract/notional amount | 2018 Contract/notional amount due after one year | 2018 Fair value |
|---|---|---|---|---|
| Commodity swaps: (Note) (Fixed price payment, floating price receipt) | Fuel | **¥153** | **¥42** | **¥4** |
| Total | | **¥153** | **¥42** | **¥4** |

*Note: The fair values of commodity swaps are measured using the quoted price obtained from the exchange.*

Millions of yen

| | Hedged item | 2017 Contract/notional amount | 2017 Contract/notional amount due after one year | 2017 Fair value |
|---|---|---|---|---|
| Commodity swaps: (Note) (Fixed price payment, floating price receipt) | Fuel | ¥170 | ¥47 | ¥(10) |
| Total | | ¥170 | ¥47 | ¥(10) |

*Note: The fair values of commodity swaps are measured using the quoted price obtained from the exchange.*

## Note 21: Commitments and Contingent Liabilities

Contingent liabilities at December 31, 2018 and 2017, are as follows:

Millions of yen

| | 2018 | 2017 |
|---|---|---|
| Trade notes discounted with banks | **¥ 9** | ¥ 21 |
| Liabilities for guarantee and other | **637** | 705 |
| Total | **¥646** | ¥726 |

In the opinion of management, the eventual settlement of pending lawsuits in which any of the companies in the Group is the defendant will not have a material effect on the consolidated financial position or consolidated results of operations of the Group.

## Note 22:

### Other Comprehensive Income

Each component of other comprehensive income and related tax effects (including those on non-controlling interests) for the fiscal years ended December 31, 2018 and 2017, comprises the following:

| | Millions of yen | |
|---|---|---|
| | **2018** | 2017 |
| Valuation difference on available-for-sale securities: | | |
| Gains (losses) arising during the year | **¥ (6,160)** | ¥ 3,940 |
| Reclassification adjustments to profit (loss) | **(3,118)** | (214) |
| Amount before income tax effect | **(9,278)** | 3,726 |
| Income tax effect | **2,776** | (1,136) |
| Total | **(6,502)** | 2,590 |
| Deferred gains or losses on hedges: | | |
| Gains (losses) arising during the year | **6** | 37 |
| Reclassification adjustments to profit (loss) | **17** | 227 |
| Amount before income tax effect | **23** | 264 |
| Income tax effect | **(6)** | (81) |
| Total | **17** | 183 |
| Foreign currency translation adjustment: | | |
| Adjustments arising during the year | **(20,112)** | 1,015 |
| Reclassification adjustments to profit (loss) | **(91)** | (36) |
| Amount before income tax effect | **(20,203)** | 979 |
| Total | **(20,203)** | 979 |
| Remeasurements of defined benefit plans: | | |
| Adjustments arising during the year | **(13,529)** | 5,137 |
| Reclassification adjustments to profit (loss) | **556** | 1,216 |
| Amount before income tax effect | **(12,973)** | 6,353 |
| Income tax effect | **3,560** | (1,635) |
| Total | **(9,413)** | 4,718 |
| Share of other comprehensive income of associates accounted for using equity method: | | |
| Gains (losses) arising during the year | **(1,547)** | 1,565 |
| Reclassification adjustments to profit (loss) | **2** | (2) |
| Total | **(1,545)** | 1,563 |
| Total other comprehensive income | **¥(37,646)** | ¥10,033 |

## Note 23:

### Subsequent Events

At the Company's annual general meeting of shareholders held on March 27, 2019, the shareholders approved the following appropriations of retained earnings:

| | Millions of yen |
|---|---|
| Cash dividends, ¥65.00 per share | **¥6,162** |
| Total | **¥6,162** |

*Note: The total amount of dividends resolved at the annual general meeting of shareholders held on March 27, 2019, includes dividends of ¥10 million for the Company's shares held by the Board Benefit Trust (BBT).*

## Note 24:

## Segment Information

### (1) Segment information

#### Description of reportable segments

The reportable segments of the Group are components for which discrete financial information is available and whose operating results are regularly reviewed by the board of directors to evaluate their performance and determine the allocation of management resources.

The Group has seven product divisions, namely "Printing Inks," "Pigments," "Liquid Crystal Materials," "Polymers," "Liquid Compounds," "Solid Compounds" and "Application Materials," and each product division conducts its business.

The product divisions are aggregated into five reportable segments, namely "Printing Inks," "Fine Chemicals," "Polymers," "Compounds" and "Application Materials," based on the similarity of the products and services.

"Printing Inks" mainly consists of gravure inks, offset inks and news inks. "Fine Chemicals" mainly consists of organic pigments and liquid crystal materials. "Polymers" mainly consists of synthetic resins, such as acrylic, polyurethane, epoxy and polystyrene resins. "Compounds" mainly consists of polyphenylene sulfide (PPS) compounds, jet inks and plastic colorants. "Application Materials" mainly consists of industrial adhesive tapes and health foods.

#### Methods of measurement for the amounts of sales, profit (loss), assets, liabilities and other items for each reportable segment

The accounting policies of each reportable segment are consistent with those disclosed in Note 2 "Summary of Significant Accounting Policies."

Segment profits are based on operating income.

Intersegment sales are mainly based on market price or cost of goods manufactured.

#### Information about sales, profit (loss), assets, liabilities and other items

Millions of yen

| | 2018 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Reportable Segments | | | | | | | |
| | Printing Inks | Fine Chemicals | Polymers | Compounds | Application Materials | Total | Others | Total |
| Sales: | | | | | | | | |
| Sales to customers | ¥380,558 | ¥ 99,659 | ¥201,231 | ¥65,111 | ¥58,427 | ¥804,986 | ¥ 512 | ¥805,498 |
| Intersegment sales | — | 32,608 | 4,587 | 111 | 52 | 37,358 | — | 37,358 |
| Total sales | 380,558 | 132,267 | 205,818 | 65,222 | 58,479 | 842,344 | 512 | 842,856 |
| Segment profit | 13,783 | 16,409 | 17,532 | 3,221 | 3,196 | 54,141 | 95 | 54,236 |
| Segment assets | ¥319,462 | ¥ 98,276 | ¥208,859 | ¥89,036 | ¥53,748 | ¥769,381 | ¥36,108 | ¥805,489 |
| Others: | | | | | | | | |
| Depreciation and amortization | 11,611 | 4,846 | 8,131 | 4,606 | 2,148 | 31,342 | 378 | 31,720 |
| Amortization of goodwill | 22 | 1 | 103 | — | — | 126 | 30 | 156 |
| Investments in affiliates | 2,630 | 1,149 | 21,616 | 23,945 | 1,632 | 50,972 | 3,579 | 54,551 |
| Increase in property, plant and equipment and intangible assets | 9,212 | 6,461 | 8,637 | 4,284 | 3,069 | 31,663 | 250 | 31,913 |

Millions of yen

| | 2017 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Reportable Segments | | | | | | | |
| | Printing Inks | Fine Chemicals | Polymers | Compounds | Application Materials | Total | Others | Total |
| Sales: | | | | | | | | |
| Sales to customers | ¥373,666 | ¥100,878 | ¥193,649 | ¥64,605 | ¥56,019 | ¥788,817 | ¥ 610 | ¥789,427 |
| Intersegment sales | — | 34,542 | 4,234 | 75 | 58 | 38,909 | — | 38,909 |
| Total sales | 373,666 | 135,420 | 197,883 | 64,680 | 56,077 | 827,726 | 610 | 828,336 |
| Segment profit | 17,447 | 17,355 | 19,608 | 4,989 | 2,598 | 61,997 | 58 | 62,055 |
| Segment assets | ¥324,999 | ¥ 98,203 | ¥214,438 | ¥94,350 | ¥53,239 | ¥785,229 | ¥39,905 | ¥825,134 |
| Others: | | | | | | | | |
| Depreciation and amortization | 10,741 | 4,906 | 7,931 | 4,500 | 2,006 | 30,084 | 408 | 30,492 |
| Amortization of goodwill | 54 | 124 | 137 | — | — | 315 | 30 | 345 |
| Investments in affiliates | 2,754 | 1,001 | 20,973 | 24,788 | 1,583 | 51,099 | 3,167 | 54,266 |
| Increase in property, plant and equipment and intangible assets | 8,549 | 5,193 | 9,111 | 5,385 | 3,034 | 31,272 | 382 | 31,654 |

## Reconciliation between reportable segment total and amounts disclosed in consolidated financial statements

Millions of yen

| | **2018** | 2017 |
|---|---|---|
| Sales: | | |
| Reportable segment total | **¥842,344** | ¥827,726 |
| Sales in "Others" | **512** | 610 |
| Elimination of intersegment transactions | **(37,358)** | (38,909) |
| Sales in consolidated financial statements | **¥805,498** | ¥789,427 |

Millions of yen

| | **2018** | 2017 |
|---|---|---|
| Profit: | | |
| Reportable segment total | **¥54,141** | ¥61,997 |
| Profit in "Others" | **95** | 58 |
| Corporate expenses | **(5,851)** | (5,572) |
| Operating income in consolidated financial statements | **¥48,385** | ¥56,483 |

*Note: Corporate expenses consist substantially of R&D expenses incurred by the DIC Central Research Laboratories to develop new products, which are not included in any reportable segment.*

Millions of yen

| | **2018** | 2017 |
|---|---|---|
| Assets: | | |
| Reportable segment total | **¥769,381** | ¥785,229 |
| Assets in "Others" | **36,108** | 39,905 |
| Elimination between segments | **(40,630)** | (39,793) |
| Corporate assets | **40,627** | 46,415 |
| Assets in consolidated financial statements | **¥805,486** | ¥831,756 |

*Note: Corporate assets consist of deferred tax assets and assets of the DIC Central Research Laboratories and Kawamura Memorial DIC Museum of Art, which are not included in any reportable segment.*

Other items are as follows:

Millions of yen

| | 2018 | | | | 2017 | | | |
|---|---|---|---|---|---|---|---|---|
| | Reportable Segments | Others | Adjustments | Consolidated | Reportable Segments | Others | Adjustments | Consolidated |
| Depreciation and amortization | **¥31,342** | **¥ 378** | **¥1,105** | **¥32,825** | ¥30,084 | ¥ 408 | ¥1,032 | ¥31,524 |
| Amortization of goodwill | **126** | **30** | **—** | **156** | 315 | 30 | — | 345 |
| Investments in affiliates | **50,972** | **3,579** | **—** | **54,551** | 51,099 | 3,167 | — | 54,266 |
| Increase in property, plant and equipment and intangible assets | **31,663** | **250** | **171** | **32,084** | 31,272 | 382 | 1,930 | 33,584 |

*Notes: 1. The adjustments for depreciation and amortization are mainly depreciation and amortization related to the DIC Central Research Laboratories that cannot be allocated to any reportable segment.*
*2. The adjustments for increase in property, plant and equipment and intangible assets are mainly capital investments of the DIC Central Research Laboratories that cannot be allocated to any reportable segment.*

### (2) Related information

### Information about geographical areas

Millions of yen

| | 2018 | | | |
|---|---|---|---|---|
| | Japan | USA | Others | Total |
| Net sales (Note) | **¥292,857** | **¥97,682** | **¥414,959** | **¥805,498** |
| Property, plant and equipment | **127,257** | **28,898** | **71,996** | **228,151** |

*Note: Net sales is based on customer location and is classified by country.*

Millions of yen

| | 2017 | | | |
|---|---|---|---|---|
| | Japan | USA | Others | Total |
| Net sales (Note) | ¥288,608 | ¥101,129 | ¥399,690 | ¥789,427 |
| Property, plant and equipment | 125,369 | 26,817 | 79,491 | 231,677 |

*Note: Net sales is based on customer location and is classified by country.*

### Information about major customers

Not applicable for the fiscal years ended December 31, 2018 and 2017, because there is no single customer which accounts for more than 10% of net sales shown in the consolidated statement of income.

### (3) Impairment loss of assets by reportable segment

There was no impairment loss of assets for the fiscal year ended December 31, 2018.

Millions of yen

| | 2017 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Printing Inks | Fine Chemicals | Polymers | Compounds | Application Materials | Others | Corporate and eliminations | Consolidated |
| Impairment loss | ¥200 | ¥— | ¥34 | ¥— | ¥— | ¥— | ¥— | ¥234 |

### (4) Amortization and unamortized balances of goodwill by reportable segment

Millions of yen

| | 2018 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Printing Inks | Fine Chemicals | Polymers | Compounds | Application Materials | Others | Corporate and eliminations | Consolidated |
| Amortization | **¥22** | **¥ 1** | **¥103** | **¥—** | **¥—** | **¥30** | **¥—** | **¥156** |
| Unamortized balances | **34** | **—** | **—** | **—** | **—** | **—** | **—** | **34** |

Millions of yen

| | 2017 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Printing Inks | Fine Chemicals | Polymers | Compounds | Application Materials | Others | Corporate and eliminations | Consolidated |
| Amortization | ¥54 | ¥124 | ¥137 | ¥— | ¥— | ¥30 | ¥— | ¥345 |
| Unamortized balances | 65 | 1 | 103 | — | — | 30 | — | 199 |

## Note 25:

## Related-Party Transactions

### (1) Related-party transactions with the Company

Related-party transactions with directors, corporate auditors, major individual shareholders and others of the Company for the fiscal years ended December 31, 2018 and 2017, are as follows:

Millions of yen

**2018**

| Type of related party | Name | Location | Capital or investment | Principal business | Ownership of voting rights | Relation with related parties | Contents of transaction | Amount of transaction (Note 1) | Account | Balance at year-end (Note 2) |
|---|---|---|---|---|---|---|---|---|---|---|
| Companies where directors and their close relatives owned a majority of the voting rights (Note 3) | Nissei Real-Estate Co., Ltd. | Chiyoda-ku, Tokyo | 10 | Rental of properties and others | — | Rental of buildings and others | Payment of rent for buildings and others (Note 4) | 2,206 | Security deposit | 1,883 |
| | Dainichi Can Co., Ltd. | Chiyoda-ku, Tokyo | 10 | Manufacture and sale of metallic containers | — | Purchase of metallic containers and others | Purchase of metallic containers and others (Note 5) | 525 | Trade notes, accounts payable, and other accounts payable | 217 |
| | | | | | | | Sales of merchandise and finished goods, and offering of service (Note 6) | 61 | Trade notes and accounts receivable | 31 |
| | Nissin Trading Co., Ltd. | Chiyoda-ku, Tokyo | 20 | Sale, import and export of petrochemical-related products | — | Purchase of raw materials and others | Purchase of raw materials and others (Note 7) | 6,038 | Trade notes, accounts payable, and other accounts payable | 1,665 |
| | | | | | | | Sales of merchandise and finished goods, and offering of service (Note 6) | 4,435 | Trade accounts receivable and other accounts receivable | 1,408 |

*Notes: 1. Excluding consumption taxes.*

*2. Including consumption taxes.*

*3. Yoshihisa Kawamura, a director of the Company, and his close relatives substantially own a majority of the voting rights of Nissei Real-Estate Co., Ltd.*
*Dainichi Can Co., Ltd. and Nissin Trading Co., Ltd. are fully owned by Nissei Real-Estate Co., Ltd.*
*Nissei Real-Estate Co., Ltd., Dainichi Can Co., Ltd. and Nissin Trading Co., Ltd. transferred all the Company's shares to SHOEI INC. and do not own voting rights of the Company as of the balance sheet date.*

*4. "Rental of buildings and others" are determined based on an arms-length transaction in the neighboring area.*

*5. "Purchase of metallic containers and others" are determined based on an arms-length transaction.*

*6. "Sales of merchandise and finished goods, and offering of service" are determined based on an arms-length transaction.*

*7. "Purchase of raw materials and others" are determined based on an arms-length transaction.*

Millions of yen

2017

| Type of related party | Name | Location | Capital or investment | Principal business | Ownership of voting rights | Relation with related parties | Contents of transaction | Amount of transaction (Note 1) | Account | Balance at year-end (Note 2) |
|---|---|---|---|---|---|---|---|---|---|---|
| Companies where directors and their close relatives owned a majority of the voting rights (Note 3) | Nissei Real-Estate Co., Ltd. | Chiyoda-ku, Tokyo | 10 | Rental of properties and others | Owned Direct 5.61% Indirect 7.81% | Rental of buildings and others | Payment of rent for buildings and others (Note 4) | 2,196 | Security deposit | 1,758 |
| | Dainichi Can Co., Ltd. | Chiyoda-ku, Tokyo | 10 | Manufacture and sale of metallic containers | Owned Direct 4.50% | Purchase of metallic containers and others | Purchase of metallic containers and others (Note 5) | 530 | Trade notes, accounts payable, and other accounts payable | 234 |
| | | | | | | | Sales of merchandise and finished goods, and offering of service (Note 6) | 55 | Trade notes and accounts receivable | 24 |
| | Nissin Trading Co., Ltd. | Chiyoda-ku, Tokyo | 20 | Sale, import and export of petrochemical-related products | Owned Direct 3.31% | Purchase of raw materials and others | Purchase of raw materials and others (Note 7) | 5,388 | Trade notes, accounts payable, and other accounts payable | 1,503 |
| | | | | | | | Sales of merchandise and finished goods, and offering of service (Note 6) | 4,079 | Trade accounts receivable and other accounts receivable | 1,618 |

*Notes: 1. Excluding consumption taxes.*

*2. Including consumption taxes.*

*3. Yoshihisa Kawamura, a director of the Company, and his close relatives substantially own a majority of the voting rights of Nissei Real-Estate Co., Ltd.*
*Dainichi Can Co., Ltd. and Nissin Trading Co., Ltd. are fully owned by Nissei Real-Estate Co., Ltd.*

*4. "Rental of buildings and others" are determined based on an arms-length transaction in the neighboring area.*

*5. "Purchase of metallic containers and others" are determined based on an arms-length transaction.*

*6. "Sales of merchandise and finished goods, and offering of service" are determined based on an arms-length transaction.*

*7. "Purchase of raw materials and others" are determined based on an arms-length transaction.*

### (2) Related-party transactions with consolidated subsidiaries

Related-party transactions with directors, corporate auditors, major individual shareholders and others of the Company for the fiscal years ended December 31, 2018 and 2017, are as follows:

Millions of yen

**2018**

| Type of related party | Name | Location | Capital or investment | Principal business | Ownership of voting rights | Relation with related parties | Contents of transaction | Amount of transaction (Note 1) | Account | Balance at year-end (Note 2) |
|---|---|---|---|---|---|---|---|---|---|---|
| Companies where directors and their close relatives owned a majority of the voting rights (Note 3) | Nissei Real-Estate Co., Ltd. | Chiyoda-ku, Tokyo | 10 | Rental of properties and others | — | Rental of buildings and others | Payment of rent for buildings and others (Note 4) | 15 | Security deposit | 8 |
| | Dainichi Can Co., Ltd. | Chiyoda-ku, Tokyo | 10 | Manufacture and sale of metallic containers | — | Purchase of metallic containers and others | Purchase of metallic containers and others (Note 5) | 754 | Trade notes, accounts payable, and other accounts payable | 339 |
| | | | | | | | Sales of merchandise and finished goods, and offering of service (Note 6) | 57 | Trade notes and accounts receivable | 24 |
| | Nissin Trading Co., Ltd. | Chiyoda-ku, Tokyo | 20 | Sale, import and export of petrochemical-related products | — | Purchase of raw materials and others | Purchase of raw materials and others (Note 7) | 1,485 | Trade notes, accounts payable, and other accounts payable | 267 |
| | | | | | | | Sales of merchandise and finished goods, and offering of service (Note 6) | 539 | Trade accounts receivable and other accounts receivable | 191 |

*Notes: 1. Excluding consumption taxes.*

*2. Including consumption taxes.*

*3. Yoshihisa Kawamura, a director of the Company, and his close relatives substantially own a majority of the voting rights of Nissei Real-Estate Co., Ltd.*
*Dainichi Can Co., Ltd. and Nissin Trading Co., Ltd. are fully owned by Nissei Real-Estate Co., Ltd.*
*Nissei Real-Estate Co., Ltd., Dainichi Can Co., Ltd. and Nissin Trading Co., Ltd. transferred all the Company's shares to SHOEI INC. and do not own voting rights of the Company as of the balance sheet date.*

*4. "Rental of buildings and others" are determined based on an arms-length transaction in the neighboring area.*

*5. "Purchase of metallic containers and others" are determined based on an arms-length transaction.*

*6. "Sales of merchandise and finished goods, and offering of service" are determined based on an arms-length transaction.*

*7. "Purchase of raw materials and others" are determined based on an arms-length transaction.*

Millions of yen

2017

| Type of related party | Name | Location | Capital or investment | Principal business | Ownership of voting rights | Relation with related parties | Contents of transaction | Amount of transaction (Note 1) | Account | Balance at year-end (Note 2) |
|---|---|---|---|---|---|---|---|---|---|---|
| Companies where directors and their close relatives owned a majority of the voting rights (Note 3) | Nissei Real-Estate Co., Ltd. | Chiyoda-ku, Tokyo | 10 | Rental of properties and others | Owned Indirect 13.42% | Rental of buildings and others | Payment of rent for buildings and others (Note 4) | 16 | Security deposit | 8 |
| | Dainichi Can Co., Ltd. | Chiyoda-ku, Tokyo | 10 | Manufacture and sale of metallic containers | Owned Indirect 4.50% | Purchase of metallic containers and others | Purchase of metallic containers and others (Note 5) | 620 | Trade notes, accounts payable, and other accounts payable | 264 |
| | | | | | | | Sales of merchandise and finished goods, and offering of service (Note 6) | 57 | Trade notes and accounts receivable | 25 |
| | Nissin Trading Co., Ltd. | Chiyoda-ku, Tokyo | 20 | Sale, import and export of petrochemical-related products | Owned Indirect 3.31% | Purchase of raw materials and others | Purchase of raw materials and others (Note 7) | 978 | Trade notes, accounts payable, and other accounts payable | 186 |
| | | | | | | | Sales of merchandise and finished goods, and offering of service (Note 6) | 478 | Trade accounts receivable and other accounts receivable | 147 |

*Notes: 1. Excluding consumption taxes.*

*2. Including consumption taxes.*

*3. Yoshihisa Kawamura, a director of the Company, and his close relatives substantially own a majority of the voting rights of Nissei Real-Estate Co., Ltd.*
*Dainichi Can Co., Ltd. and Nissin Trading Co., Ltd. are fully owned by Nissei Real-Estate Co., Ltd.*

*4. "Rental of buildings and others" are determined based on an arms-length transaction in the neighboring area.*

*5. "Purchase of metallic containers and others" are determined based on an arms-length transaction.*

*6. "Sales of merchandise and finished goods, and offering of service" are determined based on an arms-length transaction.*

*7. "Purchase of raw materials and others" are determined based on an arms-length transaction.*

## 1. Basic framework for internal control over financial reporting

Kaoru Ino, Representative Director, President and CEO, and Masayuki Saito, Representative Director, Executive Vice President and CFO of DIC Corporation (the "Company"), are responsible for designing and operating internal control over the Company's financial reporting and have designed and operated internal control over financial reporting in accordance with the basic framework for internal control set forth in "On the Revision of the Standards and Practice Standards for Management Assessment and Audit concerning Internal Control Over Financial Reporting (Council Opinions)," issued by the Business Accounting Council of the Financial Services Agency of Japan.

Internal control aims to achieve its objectives to a reasonable extent with the organized and integrated function of basic individual elements of internal control as a whole. Accordingly, due to the inherent limitations, there is a possibility that misstatements may not be completely prevented or detected by internal controls over financial reporting.

## 2. Scope of assessment, the basis date of assessment and assessment procedures

The assessment of internal control over financial reporting for fiscal year 2018 was conducted as of December 31, 2018, which is the end of this fiscal year. The assessment was performed in accordance with relevant assessment standards generally accepted in Japan for internal control over financial reporting.

In conducting this assessment, we began by evaluating internal control which may have a material impact on overall consolidated financial reporting ("company-level controls") and, based on the results of this assessment, business processes to be assessed were selected. We then analyzed these selected business processes to identify key controls therein that may have a material impact on the reliability of the Company's financial reporting, after which we examined the design and operation of these controls. These procedures thus allowed us to accurately evaluate the effectiveness of the Company's internal control.

We determined the required scope of assessment of internal control over financial reporting for the Company and its consolidated subsidiaries and equity-method affiliates from the perspective of materiality or the degree to which it may affect the reliability of financial reporting. Materiality of the impact which may affect the reliability of financial reporting is determined based on potential quantitative and qualitative impact on financial reporting. In light of the results of assessment of company-level controls, we reasonably determined the scope of assessment of process-level controls. Consolidated subsidiaries and equity-method affiliates which were concluded as immaterial taking into account the degree of quantitative and qualitative impact are not included in the scope for assessment of company-level controls.

With regard to the process-level controls, significant locations and business units to be tested were selected based on the changes in the scope of consolidation during the year, as well as on net sales for the previous year, with locations and business units the combined sales volume of which reached approximately two-thirds of consolidated net sales being defined as "significant." The scope of assessment at these locations and business units encompassed business processes relevant to net sales, accounts receivable-trade, accounts payable-trade, inventories and manufacturing facilities included in property, plant and equipment as significant accounts that may have a material impact on the business objectives of the Company. In addition, business processes relating to (i) greater likelihood of material misstatements, and/or (ii) significant accounts involving estimates and management's judgment, were also identified as business processes having greater materiality, taking into account their impact on financial reporting, and were included in the scope.

## 3. Results of the assessment

Based on the results of the assessment, we concluded that as of the end of the fiscal year ended December 31, 2018, the Company's internal control over financial reporting was effectively maintained.

Kaoru Ino
Representative Director, President and CEO
DIC Corporation

Deloitte.

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## INDEPENDENT AUDITOR'S REPORT

To the Board of Directors of DIC Corporation:

### Report on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheet of DIC Corporation and its subsidiaries as of December 31, 2018, and the related consolidated statements of income, comprehensive income, changes in net assets, and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

*Management's Responsibility for the Consolidated Financial Statements*

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in Japan, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

*Auditor's Responsibility*

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in Japan. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

*Opinion*

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of DIC Corporation and its subsidiaries as of December 31, 2018, and the consolidated results of their operations and their cash flows for the year then ended in accordance with accounting principles generally accepted in Japan.

### Report on Internal Control

We have audited management's report on internal control over financial reporting of the consolidated financial statements of DIC Corporation as of December 31, 2018.

*Management's Responsibility for Report on Internal Control*

Management is responsible for designing and operating effective internal control over financial reporting and for the preparation and fair presentation of its report on internal control in accordance with assessment standards for internal control over financial reporting generally accepted in Japan. There is a possibility that misstatements may not be completely prevented or detected by internal control over financial reporting.

*Auditor's Responsibility*

Our responsibility is to express an opinion on management's report on internal control based on our audit. We conducted our internal control audit in accordance with auditing standards for internal control over financial reporting generally accepted in Japan. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether management's report on internal control is free from material misstatement.

An internal control audit involves performing procedures to obtain audit evidence about the results of the assessment of internal control over financial reporting in management's report on internal control. The procedures selected depend on the auditor's judgment, including the significance of effects on reliability of financial reporting. An internal control audit includes examining representations on the scope, procedures and results of the assessment of internal control over financial reporting made by management, as well as evaluating the overall presentation of management's report on internal control.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

*Opinion*

In our opinion, management's report on internal control referred to above, which represents that the internal control over financial reporting of the consolidated financial statements of DIC Corporation as of December 31, 2018 is effectively maintained, presents fairly, in all material respects, the results of the assessment of internal control over financial reporting in accordance with assessment standards for internal control over financial reporting generally accepted in Japan.

Deloitte Touche Tohmatsu LLC

March 27, 2019

# Investor Information and Corporate Data

*(As of December 31, 2018)*

## Investor Information

*Common Stock*

DIC common stock is listed and traded on the Tokyo Stock Exchange. There were 37,322 shareholders of record on December 31, 2018. On the Tokyo Stock Exchange, the high and low prices for each quarter of the years 2018 and 2017 were as follows:

| | 2018 | | 2017 | |
|---|---|---|---|---|
| | High | Low | High | Low |
| Jan.–Mar. | **¥4,525** | **¥3,360** | ¥4,365 | ¥3,300 |
| Apr.–Jun. | **4,020** | **3,380** | 4,195 | 3,650 |
| Jul.–Sept. | **4,135** | **3,340** | 4,415 | 3,710 |
| Oct.–Dec. | **4,125** | **3,150** | 4,375 | 3,820 |

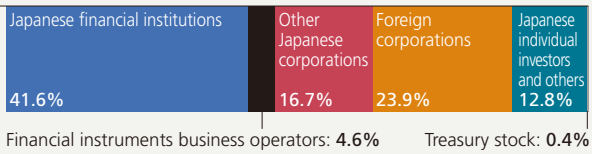
*Total Number of Shares Authorized*: 150,000,000 shares

*Number of Unit Shares*: 100 shares

*Paid-in Capital*: ¥96,556,692,787 (95,156,904 shares)

*Independent Public Accountants*: Deloitte Touche Tohmatsu LLC

*Distribution of Shareholders*




Financial instruments business operators: **4.6%** Treasury stock: **0.4%**

*Major Shareholders*

| | Number of Shares Owned (Thousands) | Percentage of Total |
|---|---|---|
| SHOEI INC. | 12,694 | 13.39% |
| The Master Trust Bank of Japan, Ltd. (Trust Account) | 6,041 | 6.37 |
| Japan Trustee Services Bank, Ltd. (Trust Account) | 5,950 | 6.28 |
| The Dai-ichi Life Insurance Company, Limited | 3,500 | 3.69 |
| Japan Trustee Services Bank, Ltd. (Trust Account 4) | 3,226 | 3.40 |
| JP MORGAN CHASE BANK 385632 | 3,191 | 3.37 |
| SMBC Nikko Securities Inc. | 2,368 | 2.50 |
| Aioi Nissay Dowa Insurance Co., Ltd. | 2,020 | 2.13 |
| NIPPON LIFE INSURANCE COMPANY | 1,900 | 2.00 |
| Japan Trustee Services Bank, Ltd. (Trust Account 5) | 1,737 | 1.83 |
| | 42,627 | 44.96% |

*Transfer Agent*: Mitsubishi UFJ Trust and Banking Corporation
10-11, Higashisuna 7-chome, Koto-ku, Tokyo
137-8081, Japan

*Meeting of Shareholders*: Our annual meeting of shareholders is held in March.

*For Further Information, Contact:*

Corporate Communications Dept.
DIC Corporation
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E-mail: prir@ma.dic.co.jp

## Corporate Data

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Tokyo 174-8520, Japan

***Corporate Headquarters***

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Tel.: (03) 6733-3000
http://www.dic-global.com/

***Principal Domestic Offices, Plants and Laboratories (Nonconsolidated)***

Number of Branch Offices: 2
Number of Plants: 9
Number of Laboratories: 1

***Number of Employees***

20,620

***Date of Foundation***

February 15, 1908

***Date of Incorporation***

March 15, 1937

(Contact)

**DIC Corporation**

Corporate Communications Dept.
Sustainability Dept.

DIC Building, 7-20, Nihonbashi 3-chome, Chuo-ku, Tokyo 103-8233, Japan
Tel: +81-3-6733-3034　Fax: +81-3-6733-3038
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