

# Integrated Report 2018



**Nissan Chemical**  
CORPORATION



# Nissan Chemical

## CORPORATION

Where it all begins.

Our goal is to fill the world with hope and happiness.

Our value is to produce a whole new excitement utilizing our imagination and creativity.

Our pride is our team of specialists believing in the infinite possibilities of chemistry and striving to achieve the impossible.

We are Nissan Chemical, an ever evolving company the world can't do without.

[Corporate logo]

This symbol designed in the motif of “N” and shining star describes the integration of creativity and the accumulation of infinite ideas that makes Nissan Chemical continue to grow by new finding. Its color, emerald green shows intelligence and credibility.

# Corporate Ethos Structure

## Mission Statement (Our Values)

“Contribute to society with excellent technologies and products.”

“Promote prosperity and welfare through concerted efforts to constantly develop new areas.”

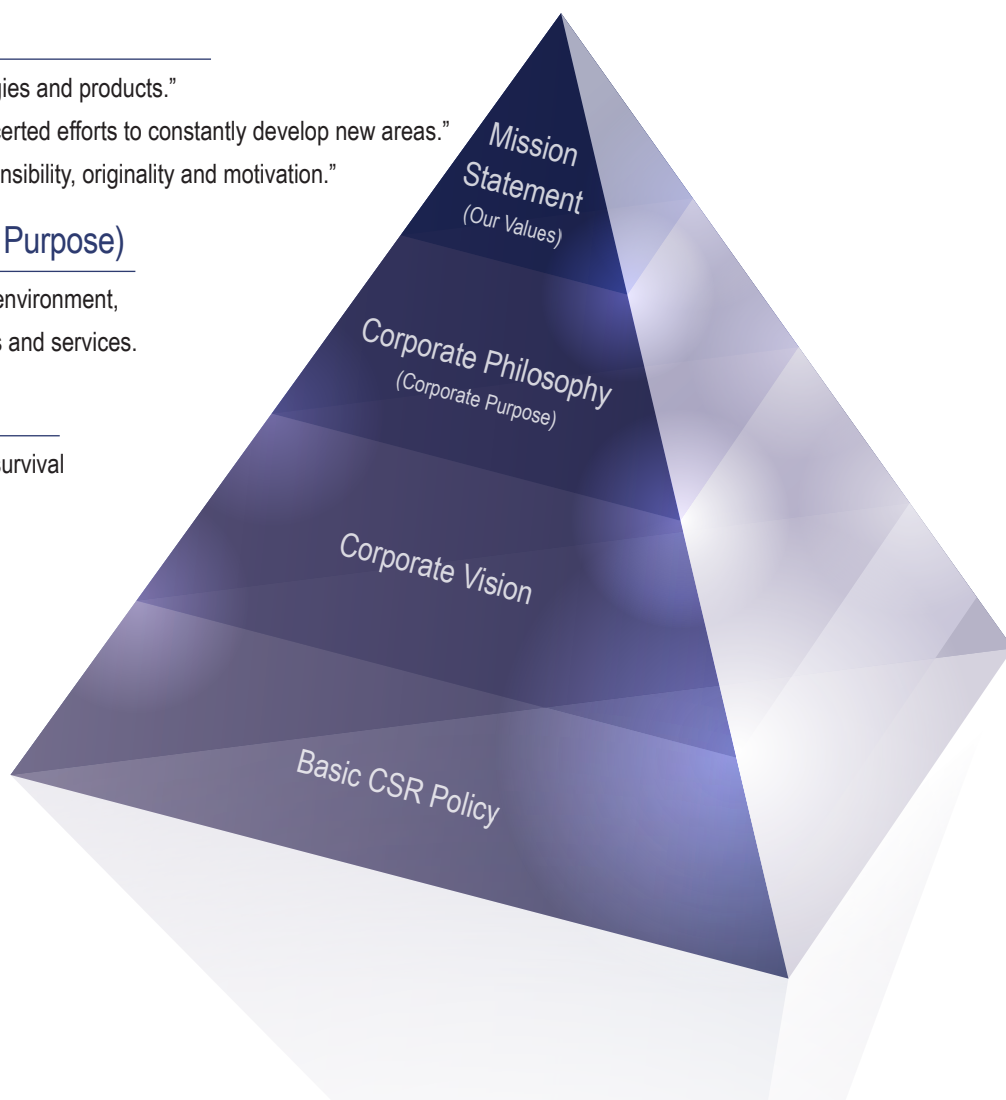
“Respect people who exhibit a sense of responsibility, originality and motivation.”

## Corporate Philosophy (Corporate Purpose)

We contribute to society in harmony with the environment, based on our excellent technologies, products and services.

## Corporate Vision

A corporate group that contributes to human survival and development.



## Basic CSR Policy

- (1) Conduct sensible business activities as a member of the international community in compliance with laws and regulations.
- (2) Enhance corporate value by providing safe and useful products and services.
- (3) Strive to achieve no-accidents & no-disasters and protect the global environment.
- (4) Disclose information appropriately with a focus on communication with stakeholders.
- (5) Create a cheerful and pleasant workplace by respecting the individuality and personalities of employees.
- (6) Conduct ourselves as good corporate citizens and decent members of society.

## Editorial Policy

In 1992, we introduced responsible care activities, and have disclosed the details of these activities via Environmental and Safety Report since 1999, CSR Report since 2013 and Annual Report in which business overview and financial section were included since 2016.

This year, we have included the materiality, process of value creation, and detailed financial information in addition to the business overview, E (Environmental), S (Society), and G (Governance) information to make this integrated report easier to understand creating medium to long-term value of Nissan Chemical Group to all stakeholders, including shareholders and investors.

We aim to make this report as a valuable communication tool by deepening our business activities and enhancing the content of this report.

### Reporting period

FY2017 (April 2017 to March 2018)

\*The occupational accidents data is from January to December 2017 (P62)

### Scope of reporting

The initiatives are described mainly in the financial and ESG information of the activities of Nissan Chemical Group.

\*Financial data includes the data of Nissan Chemical Corporation, consolidated subsidiaries and entities accounted for using equity method. Non-consolidated coverage ratio for the Group is 76% (percentage of net sales).

\*Non-financial data are for Nissan Chemical Corporation only.

### Cautionary Statements Regarding Forecasts.

The forward-looking statements contained in this report are based on information currently available. Accordingly, the actual results may vary significantly depending on changes in various important factors.

#### Consolidated subsidiaries:

Nissei Corporation, Nissan Butsuryu Co., Ltd., Nissan Green & Landscape Co., Ltd., Nissan Engineering, Ltd., Nihon Hiryo Co., Ltd., Nissan Chemical America Corporation (NCA), Nissan Chemical Europe S.A.S. (NCE), NCK Co., Ltd. (NCK)

#### Entities accounted for using equity method:

Sun Agro Co., Ltd., Clariant Catalysts (Japan) K.K.

#### Group companies:

The above consolidated subsidiaries and entities accounted for using equity method, Environmental Technical Laboratories, Ltd., Nissan Chemical Taiwan Co., Ltd. (NCT), Nissan Chemical Product (Shanghai) Co., Ltd. (NCS), Nissan Chemical Agro Korea Ltd. (NAK), Nissan Chemical Do Brasil (NCB), Nissan Agro Tech India PVT. LTD. (NAI), Nissan Chemical Materials Research (Suzhou) Co., Ltd. (NSU)

- Issued: November 2018

(The previous edition was issued in November 2017, and the next edition is planned to be issued in October 2019)

- Frequency of issuance: Annually
- Guidelines used as reference
  - International Integrated Reporting Council (IIRC) "International <IR> Framework"
  - GRI Sustainability Reporting Guidelines Standard
  - ISO26000
  - Ministry of the Environment "Environmental Accounting Guidelines 2005"

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# Corporate History (Nissan Chemical History)

Nissan chemical was founded in 1887 as Japan's first chemical fertilizer manufacturer.

We contributed to dramatic increases in domestic food production by the enthusiasms and efforts of our pioneers under the founding spirit "to dedicate ourselves to prosperity of the nation by agricultural fertility". The pioneering spirit has been still very much alive at Nissan Chemical where we have been working to expand our business horizons with innovative technologies and projects that will make the world a better place for all.


**1887~**  
(1887) Tokyo Jinzo Hiryo  
(1889) Nippon Seimi Seizo

(1910) Dainippon Jinzo Hiryo


Tokyo Jinzo Hiryo (The Tokyo Artificial Fertilizer Company) started when Dr. Jokichi Takamine, who is perhaps best known for his discovery of the digestive enzyme taka-diastase, witnessed the age's state-of-the-art chemical fertilizer production technology while studying in England. Upon his return to Japan, he enlisted the aid of some of the era's most successful business tycoons (such as Eiichi Shibusawa and Takashi Masuda) to launch a groundbreaking business that would revolutionize Japanese agriculture.

As the plant site, the land in Ojima 1-chome, Koto-ku, Tokyo, now known as Kamayabori, had been selected for its convenience in transporting raw materials and products. In 1888, the production of superphosphate (fertilizer) started.


The main raw materials for superphosphate are phosphoric ore and sulfuric acid, and we had been aiming for the in-house production of sulfuric acid and the development of its derivatives. Then the products expanded into the industrial chemicals field, manufacturing sulfuric acid and soda products. The later-merged Nippon Seimi Seizo (now Onoda Plant) was established in 1889 to produce sulfuric acid and soda.



(Kamayabori Plant)



(Package of superphosphate)



(Advertising in 1891)

**1923~**  
(1923) (Three companies joint)  
(1937) Nippon Chemical Industries (Participation to Nissan zaibatsu)  
(1949) Nissan Chemical Industries (Spins off oils and fats section)

In the first half of the twentieth century, amid a variety of M&A activities by domestic corporates, we came to turning points with the three companies joint in 1923 and with the participation to Nissan zaibatsu in 1937.

The three companies joint was a merger of Kanto Soda, Nippon Kagaku Hiryo (renamed from Nippon Seimi Seizo) and Dainippon Jinzo Hiryo (surviving company).

The Company had been promoting business diversification and entered under the umbrella of Nissan zaibatsu in 1937, which was the 50th anniversary of its foundation, renamed Nissan Chemical Industries. Nissan zaibatsu was one of the new financial cliques that took over the Kuhara Mining (now JXTG Holdings) and was renamed Nippon Sangyo. It consisted of Nippon Mining in mining sector, Hitachi in the machinery sector, and Nissan Motor in the automotive sector and so on.

After World War II, under the separation directive based on the Corporate Reconstruction and Improvement Law, the fat and oil section was separated into Nippon Oil and Fats (now NOF) in 1949 and Nissan Chemical Industries newly started.



(Toyama Plant electrolytic facilities)

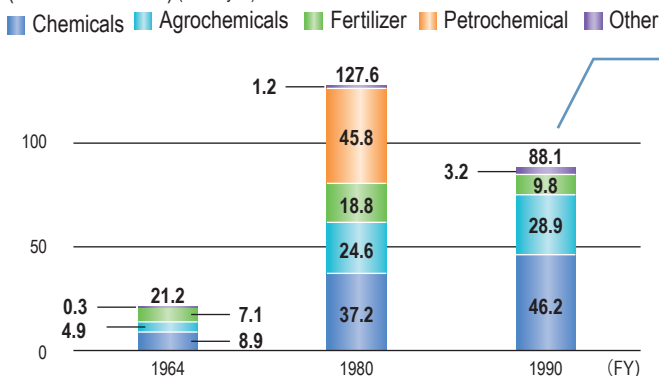


(Toyama Plant sulfuric acid warehouse)

[In 1928, we began integrated ammonia and ammonium sulfate manufacture at the Toyama Plant. Ammonia was produced through electrolysis process of water and continued until 1967.]

## Net Sales by Segment

(Non-consolidated) (billion yen)



Significant decrease in sales after withdrawing from petrochemicals

Nowadays, we provide products and services globally in the four business domains of Information & Communication, Life Sciences, Environment & Energy, and Chemicals & Affiliates, while also refining our core technologies that we have cultivated over the years.  
We are striving to create products that meet society's demands.

1965~ (1965)	(1988)	1989~ (1989)	(2018)
<p>Entering petrochemical business</p> <p>In the 1950s, as domestic imports of petrochemical products expanded and the momentum for domestic production increased, we established Nissan Petrochemicals in 1965 and entered the petrochemical business, starting with the production of higher alcohol.</p> <p>However, the petrochemical industry experienced a structural slump due to the impact of the two oil crises of the 1970s. The Company worked to rebuild its business, but it was unable to improve its profitability and began rationalization. The PVC business was transferred to Toyo Soda Manufacturing (now Tosoh), the higher alcohol and synthetic detergent business to Kyowa Hakko Kogyo (now KH Neochem), and the polyethylene business to Maruzen Petrochemical and the Company has withdrawn from the petrochemical business in 1988.</p> <p>Despite our long-awaited entry into the petrochemical business, the period of contribution to incomes was short, resulting in a large deficit. However, the development of this business brought the penetration of technological ideas to the Company, which led to the development of new technologies and businesses such as fine chemicals.</p>	<p>Withdrawal from petrochemical business</p>	<p>Nissan Chemical Corporation</p> <p>In 1989, we launched our Five-Year mid-term business plan with the aim of becoming a value-creating enterprise that was unique and R&amp;D oriented with two pillars: high-tech fields such as agrochemicals and pharmaceuticals, and traditional technology fields such as functional products and chemicals.</p> <p>The results of continued R&amp;D investment in this difficult situation emerged. By the early 1990s, a large number of agrochemicals were on the market, and in the late 1990s, LCD alignment coating materials grew significantly, while we entered the semiconductor field. In the 2000s, sales of LIVALO<sup>®</sup>, anti-cholesterol agent, increased significantly and we acquired exclusive marketing rights in Japan to ROUNDUP<sup>®</sup>, the world's largest herbicide. Since then, new agrochemicals have been introduced, and in 2013, the shipment of fluralaner, an active ingredient for veterinary pharmaceutical, which is one of the main products at present, began.</p> <p>In 2018, the Company has already been transcending the framework of industry in the development of its business and will accelerate this effort toward the future. In order to clarify this stance, we changed our name to Nissan Chemical Corporation.</p>	<p>Nissan Chemical Corporation</p>

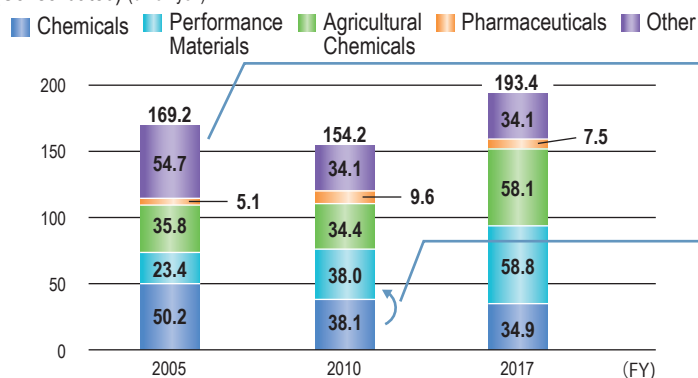
### Launch of Major Products

- (1951) SNOWTEX<sup>®</sup> (colloidal silica)
- (1964) Melamine
- (1965) HI-LITE<sup>®</sup> (disinfectant)
- (1978) TEPIC<sup>®</sup> (epoxy compound)
- (1979) High-purity Sulfuric Acid
- (1984) TARGA<sup>®</sup> (herbicide for grassy weeds)
- (1985) High-purity Ammonia
- (1987) High purity Nitric acid
- (1989) SUNEVER<sup>®</sup> (LCD alignment coating material)
- SIRIUS<sup>®</sup> (herbicide for paddy rice)
- (1991) SANMITE<sup>®</sup> (acaricide for fruit trees and vegetables)
- (1994) LANDEL<sup>®</sup> (anti-hypertension agent)
- PERMIT<sup>®</sup> (herbicide for corn)
- (1998) ARC<sup>®</sup> (bottom anti-reflective coating)
- (2002) Roundup<sup>®</sup> (nonselective herbicide)
- (2003) LIVALO<sup>®</sup> (anti-cholesterol agent)
- (2005) AdBlue<sup>®</sup> (high-grade urea solution)
- (2008) LEIMAY<sup>®</sup> (fungicide)
- (2009) STARMITE<sup>®</sup> (acaricide for fruit trees and vegetables)
- (2010) Acquisition of Thifluzamide (fungicide)
- ORACLE<sup>®</sup> (fungicide for soil-borne diseases)
- (2013) ALTAIR<sup>®</sup> (herbicide for paddy rice)
- First shipment of fluralaner (active ingredient for veterinary pharmaceutical)

Note) ARC<sup>®</sup> is a registered trademark of Brewer Science, Inc., and AdBlue<sup>®</sup> is a registered trademark of the Verband der Automobilindustrie.

### Net sales by segment

(Consolidated) (billion yen)

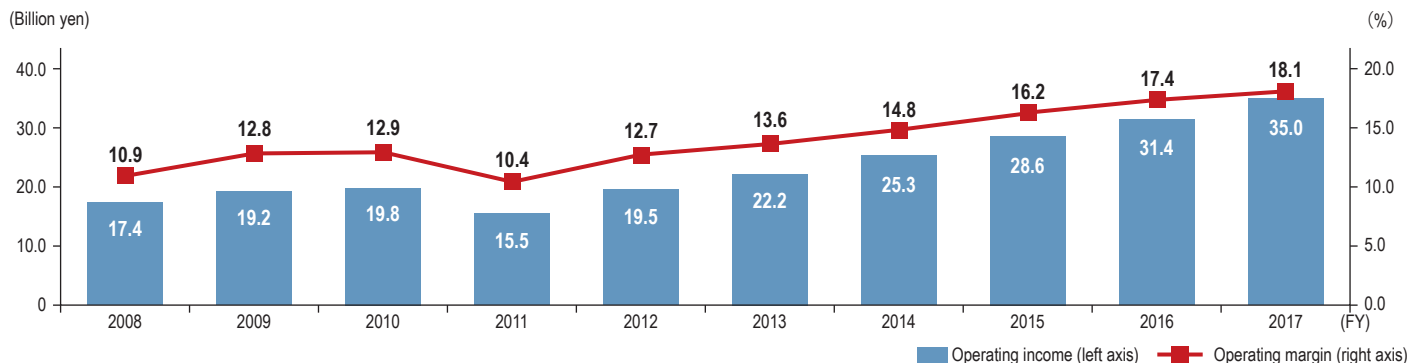


Including fertilizers. Fertilizers are not consolidated from fiscal 2007 due to spin-off of the fertilizer business.

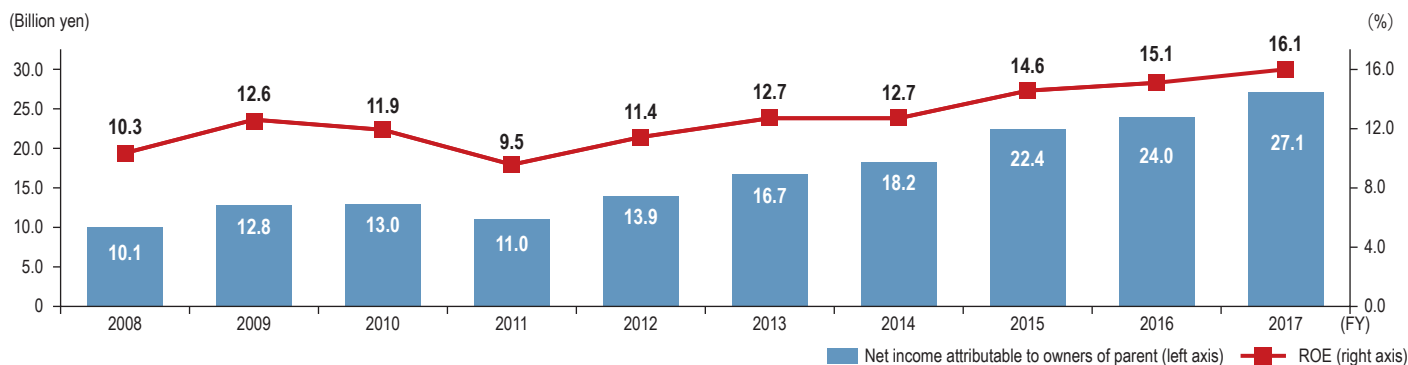
Transferring inorganic materials from Chemicals to Performance Materials

# Financial Highlights

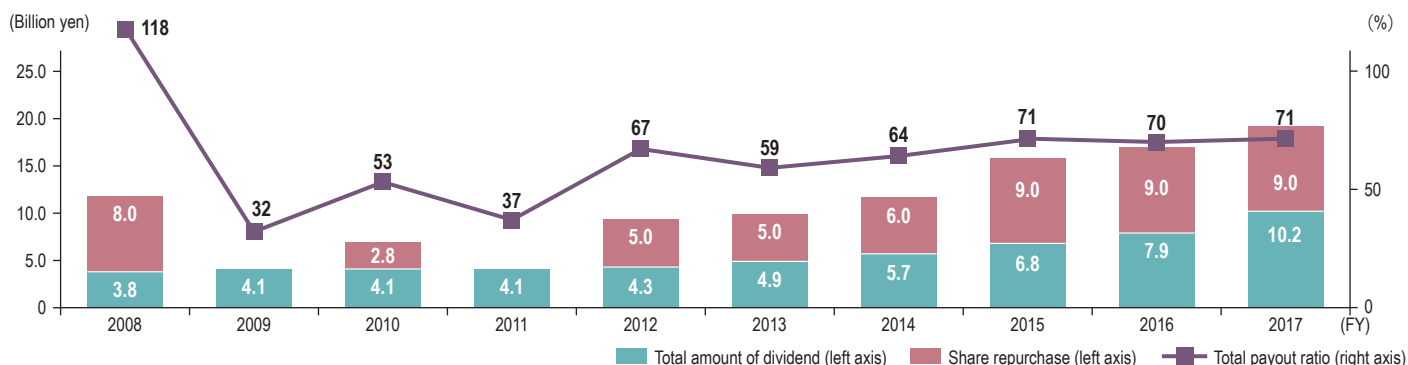
## Operating income / Operating margin



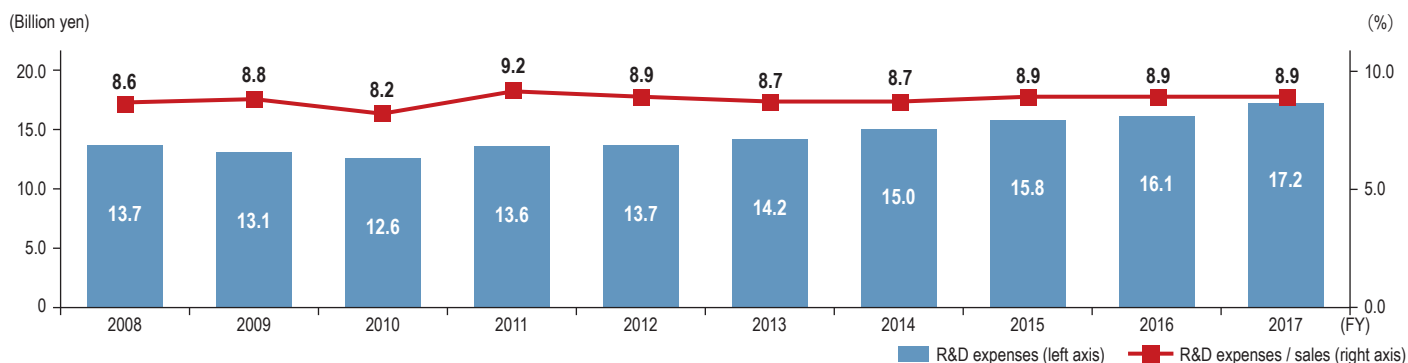
## Net income attributable to owners of parent / ROE



## Total amount of dividend / Share repurchase / Total payout ratio



## R&D expenses / Percentage of sales





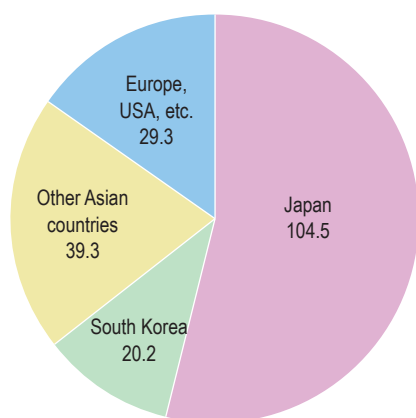
## Financial Data (consolidated)

	Unit	FY2013	FY2014	FY2015	FY2016	FY2017
Sales	Billion yen	163.7	171.2	176.9	180.3	193.4
Operating income	Billion yen	22.2	25.3	28.6	31.4	35.0
Ordinary income	Billion yen	23.7	26.4	29.5	31.7	36.2
Net income attributable to owners of parent	Billion yen	16.7	18.2	22.4	24.0	27.1
EBITDA*1	Billion yen	30.8	33.8	38.3	40.3	45.5
EPS*2	Yen / Share	102.11	113.99	143.37	156.97	180.30
Dividend	Yen / Share	30	36	44	52	68
Dividend payout ratio	%	29.4	31.6	30.7	33.1	37.7
Total assets	Billion yen	208.0	223.9	228.2	231.7	249.0
Net assets	Billion yen	137.8	151.3	156.9	163.7	176.4
Cash	Billion yen	30.8	31.3	35.3	35.7	37.7
Liabilities with interest	Billion yen	36.1	35.1	33.1	30.8	28.6
Equity ratio	%	65.7	66.9	68.1	69.9	70.1
Capex	Billion yen	8.8	9.8	10.2	14.3	13.7
Depreciation	Billion yen	8.5	8.5	9.7	8.9	10.5

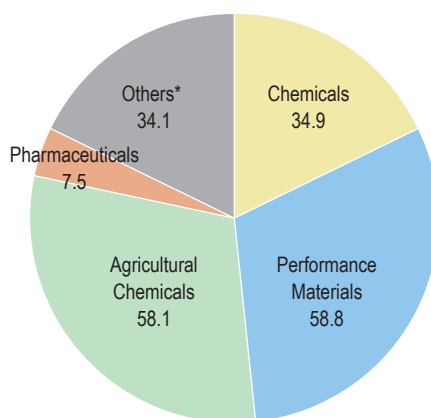
\*1 Operating income + depreciation \*2 Net income attributable to owners of parent / issued shares

## FY2017 Sales and Operating Income

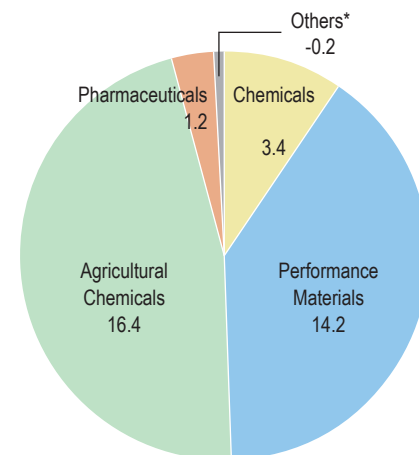
Sales according to region (billion yen)



Sales according to segment (billion yen)



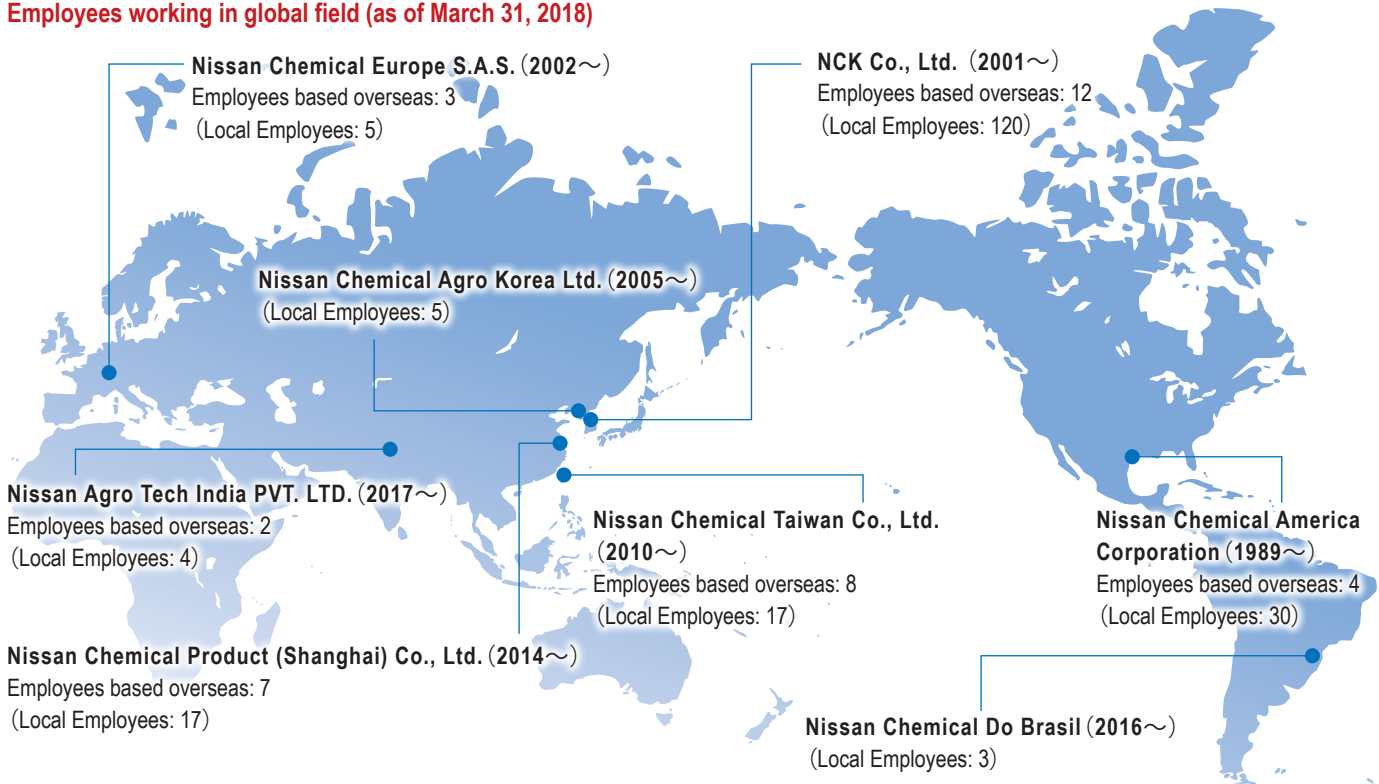
Operating income according to segment (billion yen)



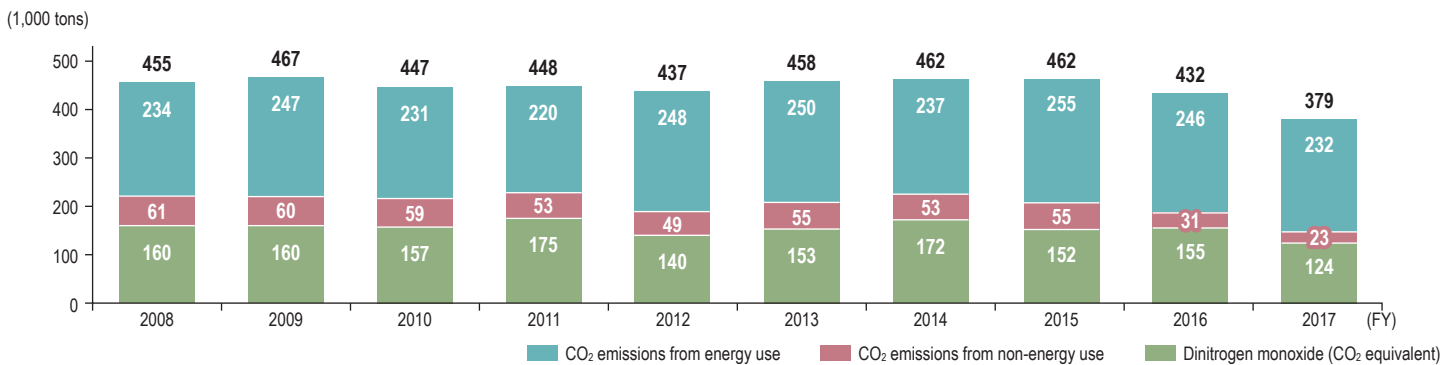
\* Others: trading, others and adjustment

# Non-Financial Highlights

## Employees working in global field (as of March 31, 2018)

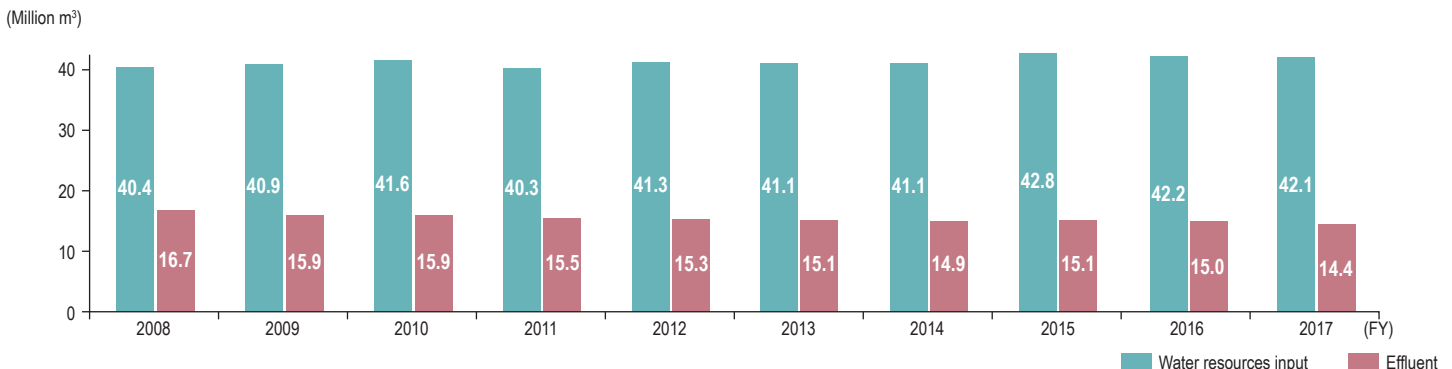


## Greenhouse gas emissions



## Water resources input\* / Effluent

\*Tap water, groundwater and industrial water used for business activities



## Non-Financial Data (non-consolidated)

	Unit	FY2013	FY2014	FY2015	FY2016	FY2017	
Full-time employees	Male	People	1,543	1,553	1,567	1,598	1,628
	Female	People	164	168	172	174	191
Percentage of females among full-time employees	%	9.6	9.8	9.9	9.8	10.5	
New employees (graduates)	Male	People	34	39	59	51	58
	Female	People	7	10	6	13	20
Percentage of females among new employees	%	17.1	20.4	9.2	20.3	25.6	
Temporary employees	Male	People	26	18	20	19	25
	Female	People	81	91	96	100	103
Managers	Male	People	449	461	465	468	469
	Female	People	9	10	12	11	11
Percentage of females among managers	%	2.0	2.1	2.5	2.3	2.3	
Re-employment of retired employees	People	66	60	64	85	91	
Percentage of re-employment of retired employees	%	63	66	97	89	75	
Percentage of employees with disabilities*1	%	2.22	2.35	2.15	2.23	2.21	
Employees who started maternity leave	People	8	9	7	13	6	
Employees who started childcare leave	Male	People	0	1	2	0	0
	Female	People	6	6	8	11	8
Percentage returning to work after taking maternity / childcare leave ("—" : Not applicable)	Male	%	—	—	100	100	—
	Female	%	80	100	100	100	100
Retention rate after taking maternity / childcare leave ("—" : Not applicable)	Male	%	—	—	100	100	—
	Female	%	100	100	85.7	100	100
Employees who started shorter working hours for childcare	Male	People	0	0	0	1	0
	Female	People	7	9	11	10	10
Average overtime per month	Hrs	18.0	18.8	19.0	20.0	19.3	
Percentage of taking annual leave	%	76.9	73.4	77.4	77.2	77.6	
Leaving job within 3 years of employment	People	1	1	3	2	2	
Percentage of employees leaving job within 3 years of employment	%	3.1	3.8	12.0	4.9	4.1	
Average of length of employees' service	Overall	Year	16.6	16.9	16.8	16.2	15.9
	Male	Year	16.6	17.0	16.9	16.3	16.1
	Female	Year	16.4	16.6	15.8	15.6	14.5
Amount of energy consumed (crude oil equivalent)*2	1,000kL	95	92	99	99	98	
Waste generation	1,000tons	26.3	33.0	33.4	33.7	34.7	
Final disposal volume of waste	1,000tons	1.5	2.3	2.2	1.1	0.8	

\*1 Statutory rate: 2.0% \*2 Energy: Fuel, purchased electricity and purchased steam used for business activities

# Message from the President



President & CEO

**Kojiro Kinoshita**

## The Results for FY2017 and Forecast for FY2018

In FY2017, the domestic economy continued to recover moderately as corporate earnings improvement, capital investment and consumer spending picked up amid the sustained strength of the global economy.

In Nissan Chemical, the Chemicals Division performed well and the sales of display materials from Performance Materials Division and Fluralaner (active ingredient for veterinary pharmaceuticals) from Agricultural Chemicals Division grew particularly. In the Pharmaceuticals Division, domestic sales of LIVALO® (anti-cholesterol agent) declined due to an increase in generics. However, in the fiscal year under review, net sales was 193.4 billion yen and operating income was 35.0 billion yen, both of which recorded highs. In terms of financial indicators, we improved upon the previous year's figures with an operating margin of 18.1% and return on equity (ROE) of 15.1%. R&D expenses as a percentage of sales accounted for 8.9% of the previous year's level.

In FY2018, we forecast sales of 204.0 billion yen and operating income of 36.8 billion yen, up 10.6 billion yen and 1.8 billion yen, respectively, compared to FY2017, due to the strong performance of all divisions and the sustained strength of the active ingredient for veterinary pharmaceuticals, although there are also factors such as rising fuel and feedstock prices and increased fixed costs associated with capital investment.

## Business Plan

In 2016, we launched "Progress2030", a long-term business plan that looks ahead to 2030, and "Vista2021", a six-year mid-term business plan that outlines the ideal state for 2021.

In "Progress2030", we envisioned the corporate vision in 2030 as "A corporate group which provides new values for helping to enrich people's lives by integrating internal and external knowledge with facing globally-changing society", and "A group of first-class pioneers who blaze a way to the future with enthusiasm by trusts they have built and skills they have cultivated".

In FY2030, we set numerical targets of 300 billion yen in sales and 50 billion yen in operating income. Based on the five core technologies we have cultivated, "Fine Organic Synthesis", "Functional Polymer Design", "Ultrafine Particle Control", "Biological Evaluation", and "Optical Control", we will contribute to the resolve of global issues in the fields of "Information & Communication", "Life Sciences", "Environment & Energy", and, "Chemicals & Affiliates" and will strive to improve company value along with the development of society.

In "Vista2021", we aim "Information & Communication and Life Sciences are the driving force for growth while Chemicals & Affiliates achieve a stable profit." and "Establish the foundation of Environment & Energy business and a position as a promising chemical manufacturer that keeps moving forward with a strong presence."

## Progress of “Vista2021 Stage I”

The first three years of the “Vista2021 Stage I” are based on three basic strategies: “Maximizing the profit from existing products”, “Improving marketing power”, and “Enhancing R&D capability”.

With regard to “Maximizing the profit from existing products”, we are accelerating the development of cutting-advanced materials that meet the technological innovations in semiconductors, expanding sales of nanoActiv® HRT, shale oil and gas extraction efficiencies, to other regions and its production facilities, and providing a stable supply of APIs in response to increased demand for Fluralaner.

Regarding “Improving marketing power”, in April 2016, we dispatched a representative to Santa Clara, which is located in Silicon Valley, the United States, to collect and evaluate information on our cutting-edge technologies, in order to create new businesses in the future. We also established subsidiaries in Brazil in 2016 and India in 2017 to expand our business in the growing overseas agrochemical market. In July 2018, subsidiary in Suzhou, China, which was established to provide technical support to the Chinese display materials market and strengthen customer services, started operations. Through these measures, we will realize the development of products that meet market needs in early stage.

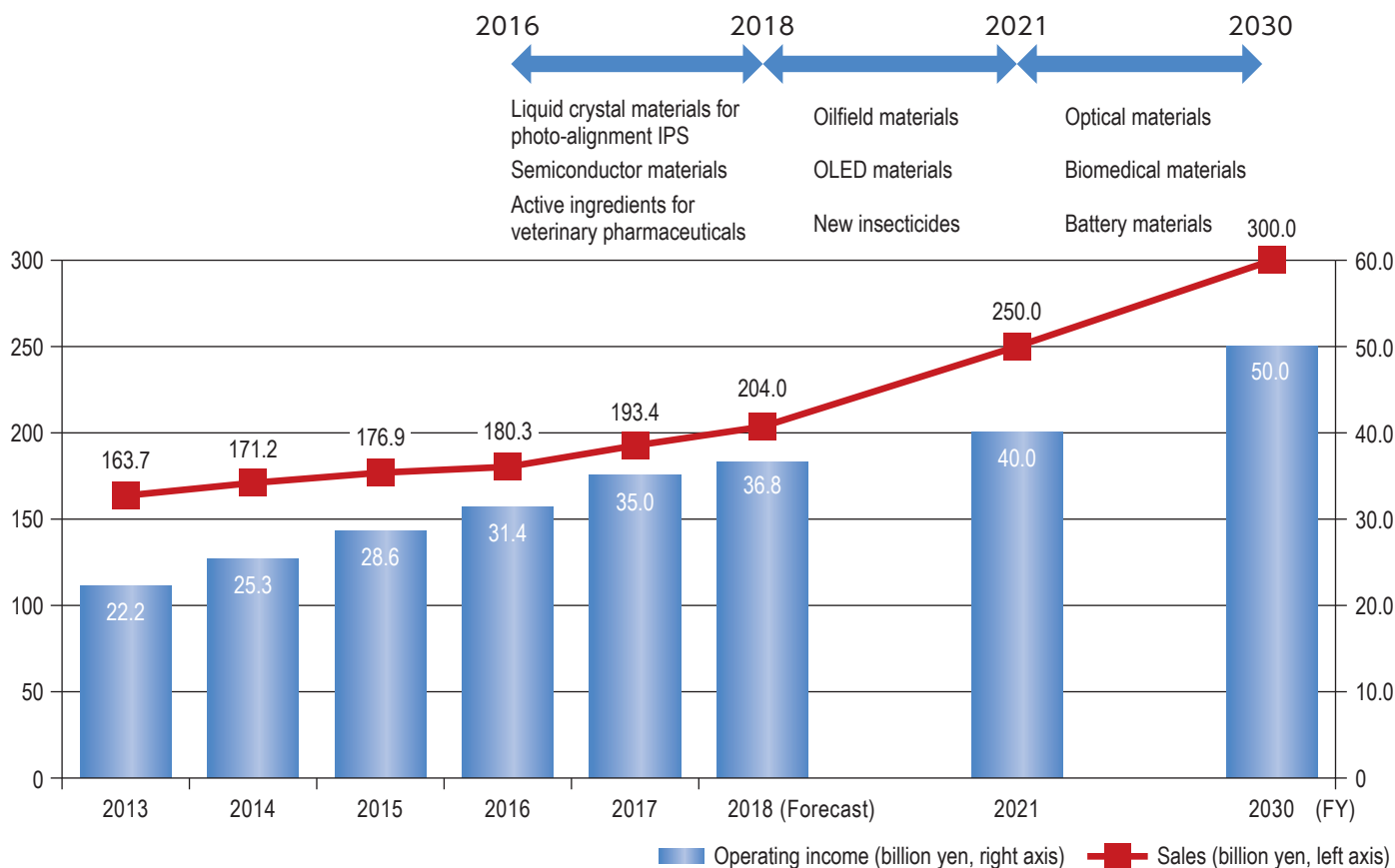
As results of “Enhancing R&D capability”, we have developed a new insecticide, GRACIA® and are scheduled to be launched in South Korea in 2018 and in Japan in 2019. In addition, we aim to expand into new business fields through the introduction of new materials and technologies, and we will reinforce the collaboration with external organizations, such as

through organizational collaboration with Kyushu University. Besides, we are working to early stage establish a synthetic method to reduce the manufacturing cost of active ingredients for medical drugs such as peptides and nucleic acids.

Our numerical targets for FY2018 are net sales of 217.0 billion yen, operating income of 35.0 billion yen, operating margin of 15% or more, and ROE of 14% or more. Although net sales will be lower owing to downturn at affiliate, we expect to achieve the targets in both operating income, operating margin and ROE.

## Shareholder Return

In our mid-term business plan, we announced our policy of gradually raising the dividend payout ratio to 40% in FY2018 and achieving a total payout ratio of 70%. In accordance with this policy, we raised the dividend payout ratio from FY2016 onward and plan to raise to 40.6% in FY2018. We have also continued to flexible share repurchase and maintain a total payout ratio of 70%.



## Message from the President

### For Sustainable Growth

This report describes the process of value creation as an indication of how our group will improve our company value in the future. Recognizing and responding to various social changes and issues, we identified and will strengthen our initiatives on materiality that are indispensable for realizing our corporate vision in 2030.

With regard to materiality, we identified 19 key issues that are divided into three parts, such as “provision of new value for helping to enrich people’s lives”, “strengthening of our business base”, and “continuous improvement of responsible care activities” with underlying the crucial issues for corporate survival that are “strengthening of corporate governance, risk management and compliance”. The materiality we identified takes into account ESG (Environment, Social, Governance) index and several guidelines including SDGs (Sustainable Development Goals), and dialogues with stakeholders.

We will resolve these issues by leveraging our strengths that are “human resources”, “R&D capability”, and “financial base”.

### Approach to Crucial Issues

In regard to corporate governance, we have introduced an executive officer system since 2014 and reduced the number of directors to accelerate management decision-making and clarify management responsibility and operational responsibility. Also, we strive to ensure the soundness and transparency of our management by improving management monitoring functions through the appointment of outside directors, strengthening compliance system, risk management system and internal control system in addition to conducting effectiveness evaluation using external organizations every few years that do not have any interest in our company.

In April 2018, we established the Risk Management & Compliance Committee, chaired by the Chief Risk Management Officer to comprehensively manage the risks of our group, improve the effectiveness of risk management, and maintain and improve compliance. At the same time, the Risk Management & Compliance Office was established under the Corporate Planning Department as a specialized organization to promote continuous improvement in all of these activities. We have established the Risk Management Basic Policy and the Compliance Basic Policy. The Committee and the Risk Management & Compliance Office are responsible for identifying group major risks, auditing compliance status, and providing compliance training and guidance. Moreover, we have established the Consultation Hotline to prevent or resolve compliance violations as early stage. In addition to paying attention to ensure whistleblowers do not suffer from any disadvantage, the contact points for reporting are set up as outside attorneys, outside corporate auditors, in addition to the department in charge of internal reporting.

### Business Activities and CSR

Our group considers that the corporate philosophy “We contribute to society in harmony with the environment, based on our excellent technologies, products and services.” is the basis of our business activities and putting the philosophy into practice is CSR activities.

Since 1992, our group has been promoting responsible care activities to ensure the environment, health, and safety of our products throughout their entire life cycle as a manufacturing company that handles chemical substances. In particular, climate change countermeasures are one of the most important issues that must be addressed around the world, such as the effect into force of the Paris Agreement. We have switched from heavy oil and naphtha, which are fuel and feedstock for ammonia and melamine, to natural gas, and reduced nitrous oxide (N<sub>2</sub>O), which is a by-product of nitric acid manufacture. As a result, we achieved our target for improvement of greenhouse gas emission rate in FY2017 under the responsible care mid-term plan by FY2021, and we revised the target upward in FY2018.

Zero accident and accident-free initiatives are our responsibility as a company and are the foundation of our business activities. Although accidents that require staff time off from work are still occurring, we aim to eliminate occupational accidents by investigating the causes of accidents, taking countermeasures, and sharing information with the entire group.

In order to achieve corporate sustainable growth, it is essential for each employee to play an active role and to revitalize the organization. We are promoting a fair personnel evaluation system, respecting diverse human resources, personalities, and mind set, and introducing various human resource development systems. In addition, based on the belief that the health of employees is a “foundation that supports sound corporate growth”, we have established a Basic Health Policy and systems so that employees can balance their work and life. As a result of these initiatives, we were recognized under the “2018 Certified Health and Productivity Management Organization Recognition Program (White 500)”, following from 2017.

We recognize that CSR elements such as attention to environment, labor practice, human rights and ethic become more important, as well as quality control, performance, cost and trading condition in value chain. We will send out “CSR Procurement Questionnaire” to our business partners and summarize their results. Based on these results, we will work with our business partners to promote CSR procurement, which enhances society sustainability, by developing activities that contribute to social and environmental impact and risk reduction in supply chain.

## Participation in United Nations Global Compact

In April 2018, we joined United Nations Global Compact (UNGC) to enhance our CSR activities. UNGC is a voluntary initiative in which corporates and collectives act as good members of the society and participate in the creation of a global framework for achieving sustainable growth by demonstrating responsibility and creative leadership. We support 10 principles advocated by United Nations in four fields in human rights, labor, the environment and anti-corruption, and will continue to make efforts to realize them, thereby contributing to the sustainable development of society.

### WE SUPPORT



Human rights	Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights
	Principle 2: Make sure that they are not complicit in human rights abuses
Labour	Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining
	Principle 4: The elimination of all forms of forced and compulsory labour
	Principle 5: The effective abolition of child labour
	Principle 6: The elimination of discrimination in respect of employment and occupation
Environment	Principle 7: Businesses should support a precautionary approach to environmental challenges
	Principle 8: Undertake initiatives to promote greater environmental responsibility
	Principle 9: Encourage the development and diffusion of environmentally friendly technologies
Anti-Corruption	Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery



## Closing

We changed our corporate name from “Nissan Chemical Industries, Ltd.” to “Nissan Chemical Corporation” on July 1, 2018. Founded in 1887 as Japan’s first chemical fertilizer manufacturer, Tokyo Jinzo Hiryo, the Company has continued numerous mergers and acquisitions. The Company has continued to take on new challenges by continuing to pursue innovative technologies that promote social progress through the enthusiasms and efforts of its pioneers, whose founding spirit is “to dedicate ourselves to prosperity of the nation by agricultural fertility”.

We have already been transcending the framework of industry in the development of our business and will accelerate this effort toward the future. It made us change the corporate name to adapt to its business content.

In FY2018, we will start formulating a Stage II for the latter three years of the “Vista2021”. While the group’s current performance is strong, we recognize that the products that drive business performance are biased, and that the creation of new products is lagging behind. By accelerating our efforts for materiality, we intend to formulate plans to achieve sustainable social and corporate growth as a future-creating enterprise that responds to social needs with unique, innovative technologies.

I hope we can rely on the understanding and support of all of our stakeholders in the future.

# 1. Outline of “Progress2030” Long-Term Business Plan

## 1 Corporate Vision in 2030

“A corporate group which provides new values for helping to enrich people’s lives by integrating internal and external knowledge with facing globally-changing society”

“A group of first-class pioneers who blaze a way to the future with enthusiasm by trusts they have built and skills they have cultivated”

## 2 Basic Strategies

“Entering new fields by evolving, deepening and expanding unique technologies”

### 1) Information & Communication (display, semiconductor, inorganic, optical and sensor materials)

For display, semiconductor and inorganic materials, we will provide products based on technological innovations in the market.

We will also create sensor materials by using our existing technologies and optical materials by establishing optical control technologies.

### 2) Life Sciences (agrochemicals, veterinary pharmaceuticals, pharmaceuticals and biomedical materials)

We will strengthen the pipeline for agrochemicals and pharmaceuticals, also develop new veterinary pharmaceuticals.

In addition, we will create biomedical materials that contribute to advanced medical care using accumulated technologies for biological evaluation and material design.

### 3) Environment & Energy (batteries, energy harvesting and thermal control materials)

We will establish a device evaluation technology then supply battery materials and materials that contribute to efficient use of energy.

### 4) Chemicals & Affiliates (basic chemicals, fine chemicals and affiliates)

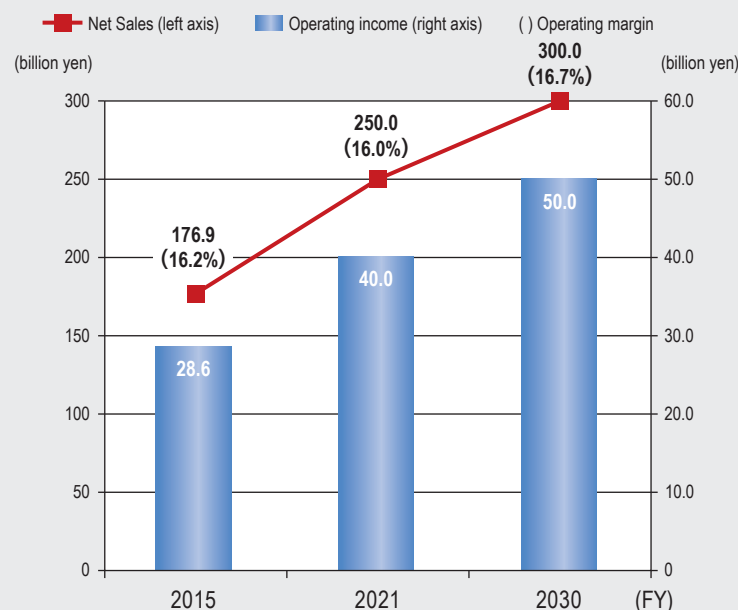
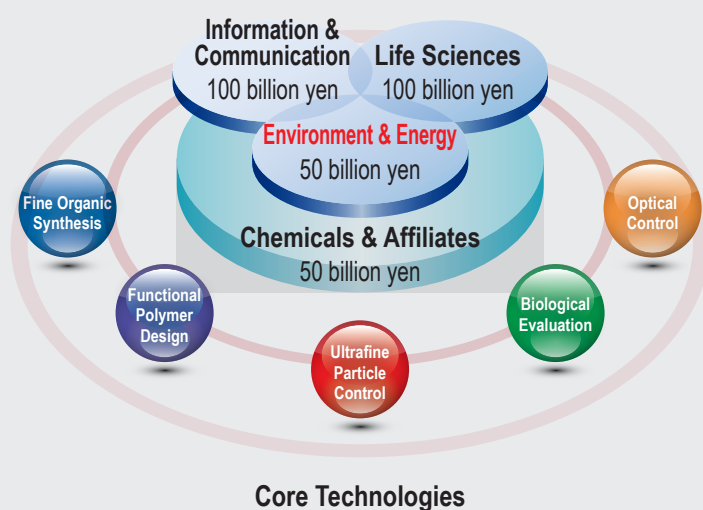
We will continue to carry out R&D in relation to TEPIC®-epoxy compound for LED sealants, solder resist, painting-and launch new high-performance compounds.

## 3 Business Domains / Business Size

“Information & Communication”, “Life Science”, “Environment & Energy”, and “Chemicals & Affiliates” based on five core technologies

Achievement of net sales of 300 billion yen and operating income of 50 billion yen

Net Sales (FY2030)





## 2. Outline of “Vista2021” Mid-Term Business Plan

—A Six-Year Plan starting in FY2016—

The plan is divided into the first three years (FY2016 to 2018) as Stage I and the second three years (FY2019 to 2021) as Stage II.

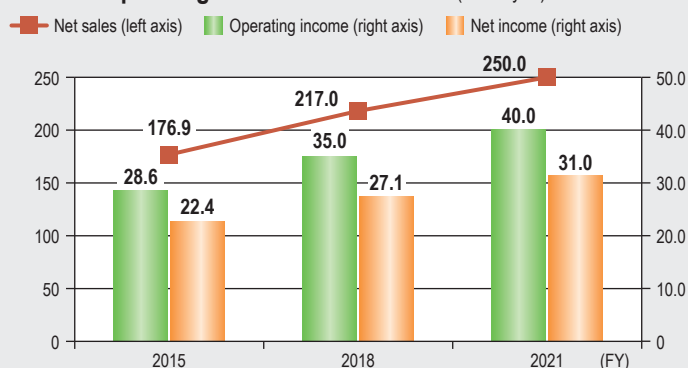
### 1 Ideal Situation of 2021

“Information & Communication and Life Sciences are the driving force for growth while Chemicals & Affiliates achieve a stable profit.”

“Establish the foundation of Environment & Energy business and a position as a promising chemical manufacturer that keeps moving forward with a strong presence.”

### 2 Financial target

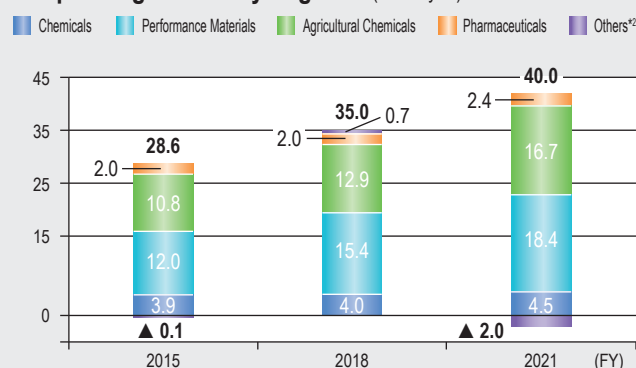
#### 1. Sales / Operating income / Net income\*1 (billion yen)



\*1 Net income attributable to owners of parent

Naphtha (¥/kL): FY2015 42,800 FY2016 35,400 FY2017 and onward 51,100 FX rate (¥/\$): FY2015 1H 122 2H 118 FY2016 and onward 115

#### 2. Operating income by Segment (billion yen)

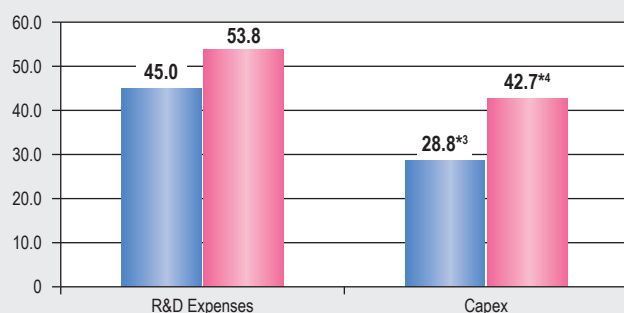


\*2 Others: trading, others and adjustment

### 3 R&D Expenses, Capex

#### R&D Expenses, Capex (billion yen)

■ FY2013-2015 total ■ FY2016-2018 total



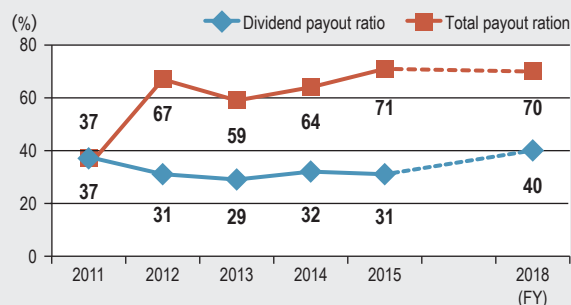
\*3 Approval basis \*4 Production commencement basis

### 4 Financial Indicators (FY2018 target)

Operating margin	Above 15%
ROE	Above 14%
R&D expenses/sales	Above 8%

### 5 Shareholder Return

Dividend payout ratio	Gradually increase to 40% in FY2018
Total payout ratio	Maintain 70%



Full details of “Progress2030” and “Vista2021” are available online.  
[https://www.nissanchem.co.jp/eng/news\\_release/release/en2016\\_05\\_16.pdf](https://www.nissanchem.co.jp/eng/news_release/release/en2016_05_16.pdf)

### 3. Outline of and Progress with “Vista2021 Stage I”

#### 1 Basic Strategies

- 1) Maximizing the profit from existing products      Boosting the market shares of products for growing fields, driving overseas business expansion, and reducing costs
- 2) Improving marketing power                              Identifying market needs by moving closer to customers and obtaining information about advanced materials
- 3) Enhancing R&D capability                                Improving existing technologies, establishing new technologies, and accelerating the development of new products

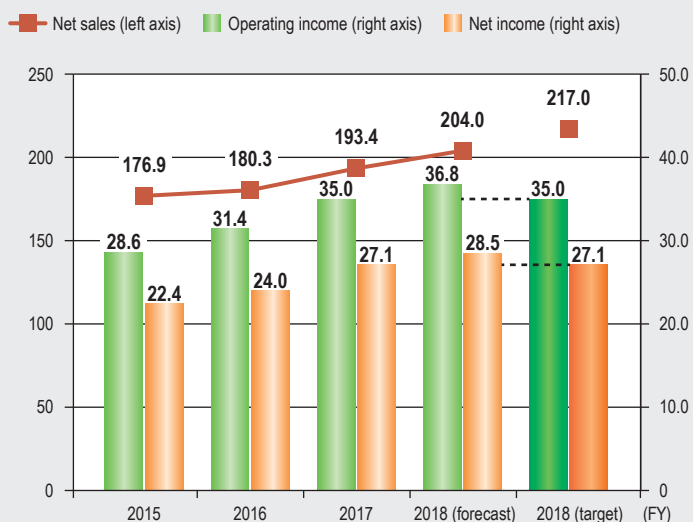
#### 2 Sources of Growth

Increased sales**1 (FY2018 vs. FY2015)		Less than one billion yen	One to three billion yen	Over three billion yen
Chemicals		AdBlue®      High purity ammonia	TEPIC®	
Performance Materials	Display Materials		VA	Photo-alignment IPS
	Semiconductor Materials	3D packaging materials (TMAT), new lithography materials		ARC® (bottom anti-reflective coating) Multi-layer semiconductor process materials
	Inorganic Materials		Oilfield materials	
	New Materials	OLED materials      Sensor materials Light control film materials      HYPERTECH®		
Agricultural Chemicals		New insecticides (in-house)      New products (acquired)	ROUNDUP®      ALTAIR®	Fluralaner      Overseas
Pharmaceuticals		LIVALO® active ingredient (overseas)      Finetech® New drugs / Expanded pipeline		

\*\*1 Increased sales based on forecasts at the time of formulating our new mid-term business plan

#### 3 Results for FY2017 and Forecast for FY2018

##### 1) Sales / Operating income / Net income (billion yen)



##### 2) Financial Indicators

	Results for FY2017	Forecast for FY2018
Operating margin	18.1%	18.0%
ROE	16.1%	15.8%
R&D expenses / sales	8.9%	9.1%

##### 3) Shareholder Return

	Results for FY2017	Forecast for FY2018
Dividend payout ratio	37.7%	40.6%
Total payout ratio	70.7%	Maintain 70%

## 4 Progress with Basic Strategies

### 1) Maximizing the profit from existing products

- i. Increasing sales of Fluralaner (active ingredient for BRAVECTO®\*2, veterinary pharmaceuticals)  
In addition to chewable tablets (oral dosage forms) for dogs sold in over 85 countries, spot-on (transdermal absorbent) for dogs and cats was released in Europe and the United States. We launched EXZOLT®\*2, which is red mite exterminator for chicken, in Europe, Brazil, and other countries and have enhanced the production capability because the demands for farm animal are expected to increase. \*2 BRAVECTO® and EXZOLT® are registered trademarks of Intervet International B.V.
- ii. Launching of ROUNDUP® MAXLOAD AL III  
We expanded the line-up of ROUNDUP® MAXLOAD AL series with AL III (fast acting + persistent type) for consumer use in March 2018.
- iii. Growth in SUNEVER® (LCD alignment coating)  
We have increased the share of smartphones and other small-and medium-sized displays, and secured new customer for televisions.
- iv. Expansion of application for inorganic materials  
We launched shale oil/gas field with NanoActiv® HRT as enhancing oil recovery that have been adopted by 30 companies in North America and have enhanced the production capability.



▲ BRAVECTO® spot-on for cats



▲ Shale oil mining site

### 2) Improving marketing power

- i. Establishing Nissan Agro Tech India PVT. LTD. (Opened for business in September 2017)  
We have enhanced sales support and extended services by cooperation with local partners in India agrochemical market, which is expected to see significant growth. In addition, we are accelerating development of the products that meet market needs.
- ii. Establishing Nissan Chemical Materials Research (Suzhou) Co., Ltd. (Opened for business in July 2018)  
We have enhanced technical support and customer services in the China display materials market and are developing the products that meet market needs.

### 3) Enhancing R&D capability

- i. Investment in PeptiStar Inc.  
We have established novel synthetic method for constrained peptides. Through this technique, we are aiming to expand contracted manufacturing and process researching services of pharmaceuticals and to develop in-house drug discovery and regenerative medicine materials.

## 5 FY2018 Sales Outlook of Future Growth Engines

FY2018 Sales Outlook Level *3	Below 0.3 billion yen	0.3 to 0.6 billion yen	0.6 to 0.9 billion yen	Total
Chemicals	New TEPIC® (liquid type) (Fine Chemicals)			0.1 billion yen
Performance Materials	HYPERTECH®(high refractive) (Display, Others) Light control film materials (Display, Others) Hole injection layer materials for OLED (Display, Others) Repellant bank layer materials (Display, Others) Alignment materials for LC retarder (Display, Others) Organosol (Insulation CTE) (Inorganic, Organo/Monomer sol) New high refractive materials (IM layer film) (Inorganic, Others)	3D packaging process materials (Semis, Others) EUV under layer (Semis) CMOS image sensor materials (Semis, Others)	Oilfield materials (Inorganic)	2.6 billion yen
Agricultural Chemicals	NEXTER® (Agro, Licensed-in)	GRACIA® (Agro, in-house) TRANSFORM™/ EXCEED™*4 (Agro, Licensed-in)		0.9 billion yen
Pharmaceuticals	3D Cell culture medium    New GE API product (Custom Chemicals)	Maxacalcitol (Custom Chemicals)		0.6 billion yen
Total 4.2 billion yen				

\*3 Including R&D costs deduction due to the sample shipments    \*4 TRANSFORM™/ EXCEED™ are trademarks of The Dow Chemical Company or its affiliates.

# Identified Materiality

We have identified the materiality needed to resolve social issues and realize our corporate vision in 2030 in addition to responding to the ever-changing business environment.

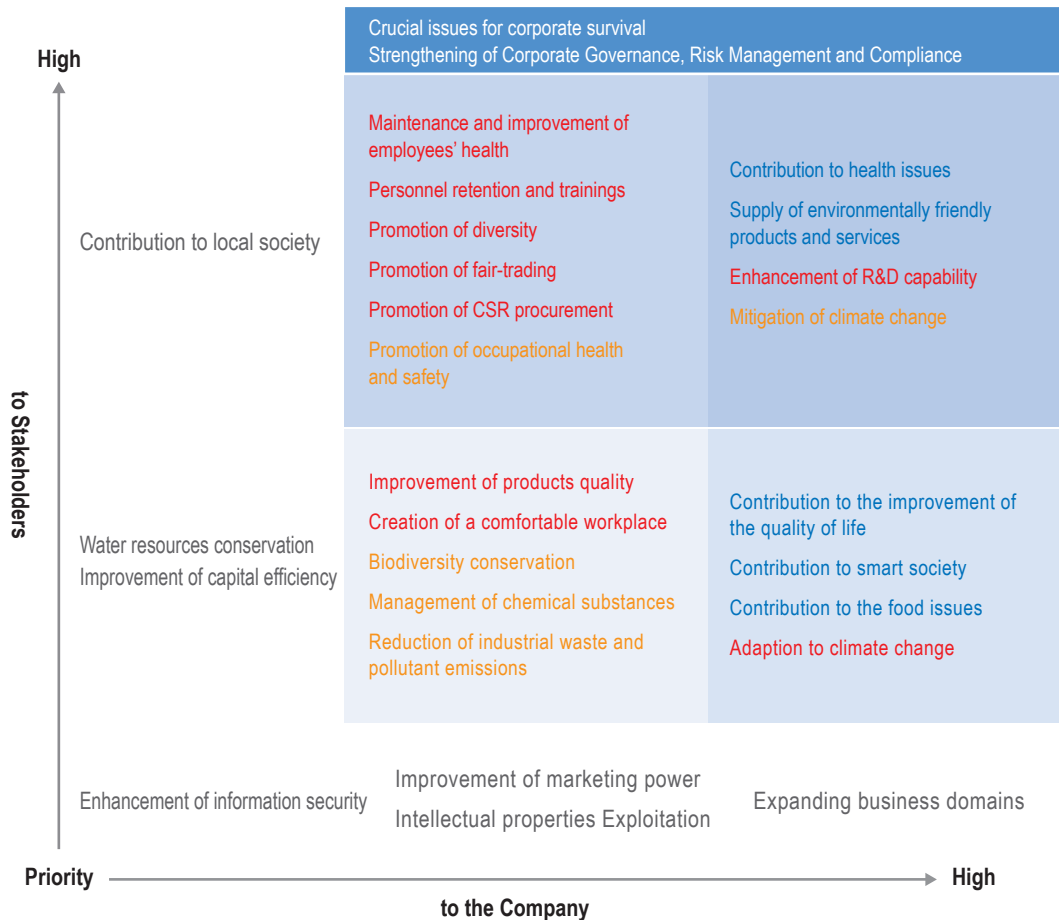
First of all, based on our group’s long- and mid-term business plan, we clarified more than 500 keywords for materiality, referring to ESG-related metrics and guidelines.



Secondly, based on each keyword, we examined materiality factors and conducted in-house assessment from the viewpoint of the priority to our company and to our stakeholders.

Subsequently, we exchanged opinions with six stakeholders on the contents of our in-house assessment, discussed incorporation of the stakeholders’ view point internally, and established a materiality matrix.



<b>Provision of new value for helping to enrich people’s lives</b>	We aim to provide new value for helping to enrich people’s lives through four businesses based on five core technologies.
<b>Strengthening of Nissan Group’s business base</b>	We aim to strengthen our business base to improve our ability to respond to increasingly diverse and sophisticated marketing needs.
<b>Continuous improvement of responsible care activities</b>	We aim to enhance the maintenance of environment, health, and safety through the operation of the Nissan Chemical Responsible Care Management System.

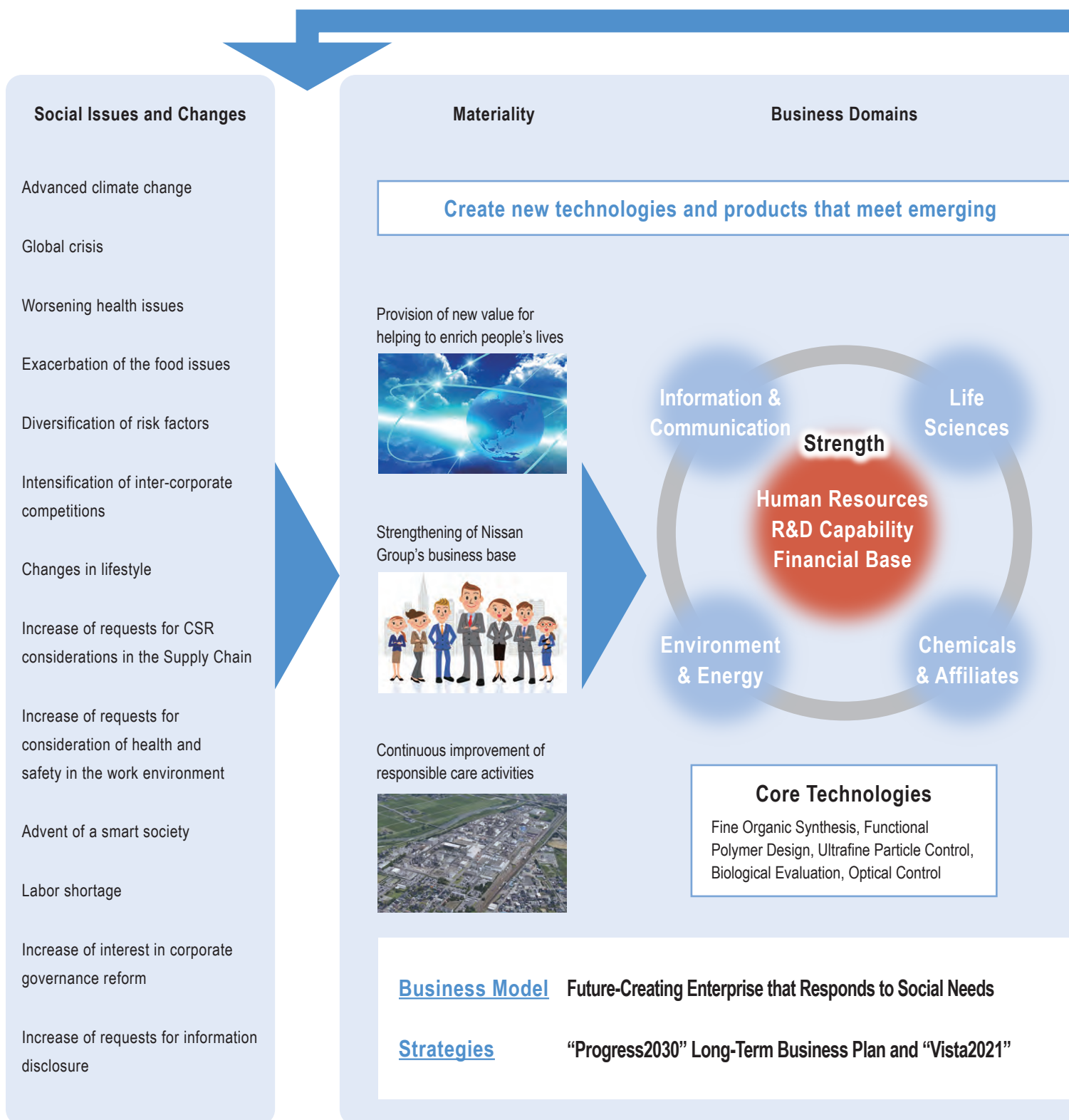


Materiality	Factor	Our Initiative
Provision of new value for helping to enrich people's lives 	Contribution to health issues	Creation of pharmaceuticals that meet medical needs and biomedical materials that contribute to advanced medical cares
	Supply of environmentally friendly products and services	Sales of high-grade urea solution for exhaust gas purification of diesel vehicles Development of energy harvesting materials that contribute to the utilization of unused energy
	Contribution to the improvement of the quality of life	Supply of veterinary pharmaceuticals for companion animals and sales of disinfectants for drinking-water
	Contribution to smart society	Development of sensor materials required for IoT and wiring materials that contribute to higher capacities and speeds of data communications
	Contribution to the food issues	Supply of agrochemicals to increase crop yields and conserve agricultural labor, and the expansion of veterinary pharmaceuticals to livestock
Strengthening of Nissan Group's business base 	Enhancement of R&D capability	Deepening core technologies, promotion of open innovation, and introduction of new technologies such as AI
	Improvement of products quality	Continuous improvement of management systems and operations based on quality policy
	Maintenance and improvement of employees' health	Review of health promotion measures by the health promotion committee and mental health checkups
	Creation of a comfortable workplace	Promotion of work-life balance, measures against harassment, and support for childcare and family care
	Personnel retention and trainings	Provision of educations and capability trainings, and introduction of overseas study program
	Promotion of diversity	Promotion of active participation of women, hiring foreign students and people with disabilities
	Promotion of fair-trading	Implementation of internal training on the "Act against Delay in Payment of Subcontract Proceeds, Etc. to Subcontractors" and the insider trading regulations
	Promotion of CSR procurement	Conduct of assessment and audits of suppliers on CSR
	Adaption to climate change	Formulation of BCPs to prepare for the plants' inability to operate due to natural disasters
	Continuous improvement of responsible care activities 	Mitigation of climate change
Promotion of occupational health and safety		Establishment of an occupational safety management system and execution of capital investment in safety
Biodiversity conservation		Operation of Bio-Park and support for the NPO "Kurohama-numa Shuhen no Shizen wo Taisetsu ni Suru Kai"
Management of chemical substances		Minimization of negative impacts on human health and the environment throughout the life cycle of chemical products
Reduction of industrial waste and pollutant emissions		Reduction of the amount of waste for final disposal volume by reusing and recycling waste and changing intermediate process methods

# Process of Value Creation

Nissan Chemical Group is developing its business activities in four business domains based on the five core technologies those have been cultivated over the years.

We aim to achieve sustainable growth together with society by making effort at the materiality identified by recognizing various social issues and changes.



## Output (Main Products)

and latent needs

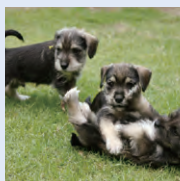
### Information & Communication

Display Materials  
Semiconductor Materials  
Optical Interconnect Materials



### Life Sciences

Agrochemicals  
Pharmaceuticals  
Veterinary Pharmaceuticals  
Biomedical Materials



### Environment & Energy

Oilfield Materials  
Secondary Battery Materials



### Chemicals & Affiliates

Basic Chemicals  
Fine Chemicals

with Unique, Innovative Technologies

Mid-Term Business Plan

## Targets

### Sales

FY2021: 250 billion yen  
FY2030: 300 billion yen

### Operating Income

FY2021: 40 billion yen  
FY2030: 50 billion yen

### Financial Indicators (FY2018)

Operating Margin: Above 15%  
ROE: Above 14%  
R&D Expenses / Sales: Above 8%

### Shareholder Return (FY2018)

Dividend Payout Ratio: 40%  
Total Payout Ratio: Maintain 70%

### Proportion of women among employees in the main career track

FY2021: 10%

### Greenhouse Gas

Emissions:  
20% reduction from FY2011 level by FY2021  
Emission rate (Emissions / sales):  
40% reduction from FY2011 level by FY2021

### Industrial Waste

FY2021:  
99.5% or more recycling rate

### Occupational Safety and Health

FY2021:  
Zero accident that requires staff time off from work

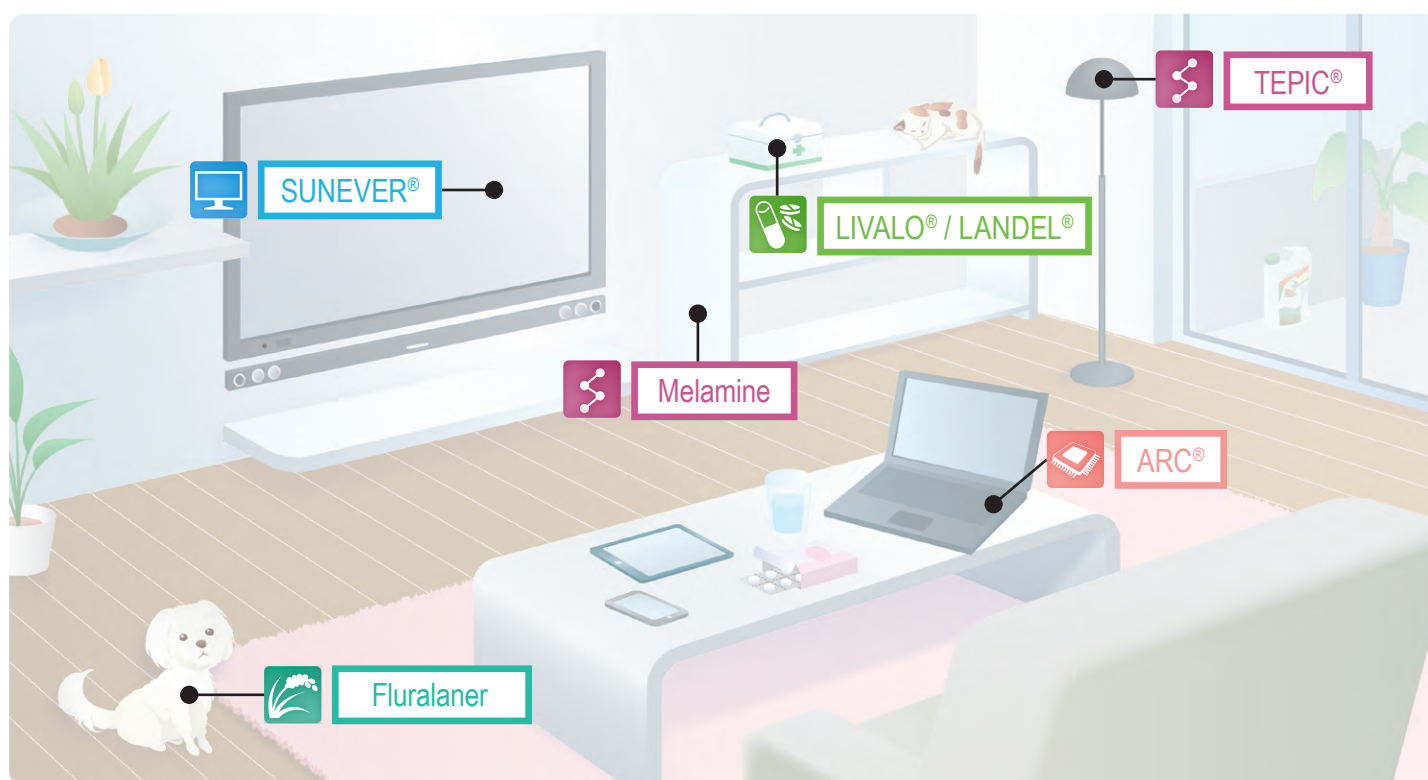
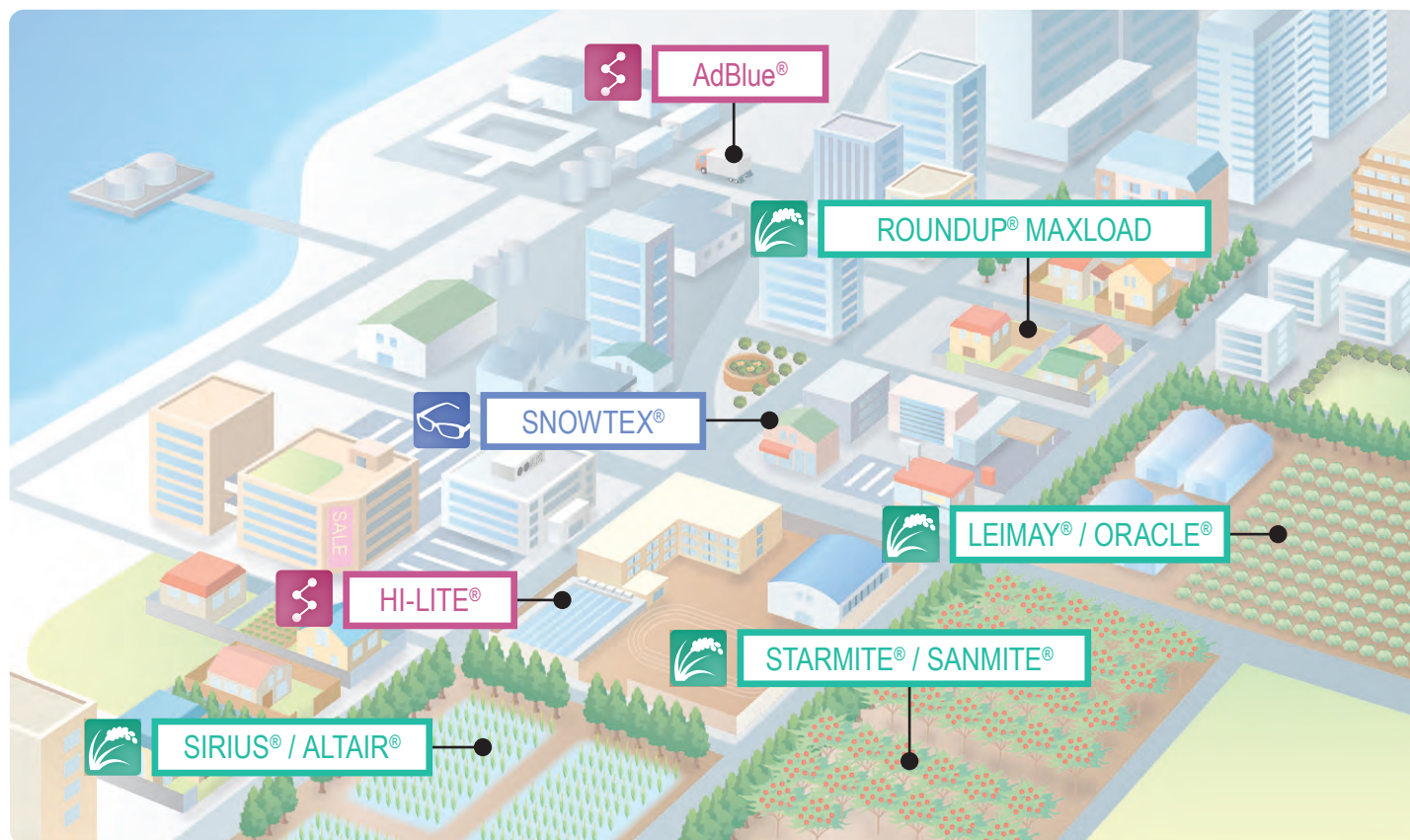
## Corporate Vision in 2030

“A corporate group which provides new values for helping to enrich people’s lives by integrating internal and external knowledge with facing globally-changing society”

“A group of first-class pioneers who blaze a way to the future with enthusiasm by trusts they have built and skills they have cultivated”

# Nissan Chemical Products that Play an Active Role in Society

Here we introduce our three business domains and products used in various parts of society.





## Performance Materials



### Display Materials

- SUNEVER® (LCD alignment coating)
- NHC® (inorganic coating materials)



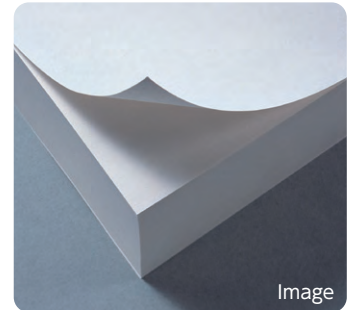
### Semiconductor Materials

- ARC® (bottom anti-reflective coating)



### Inorganic Materials

- SNOWTEX® (semiconductor polishing, hard coating, etc.)
- Organo silica sol (coating for anti-scratch, insulation, CTE reduction)



## Life Sciences



### Agricultural Chemicals

#### Herbicide

- SIRIUS®
- ALTAIR®
- ROUNDUP® MAXLOAD
- TARGA®
- PERMIT®

#### Insecticide

- STARMITE®
- SANMITE®

#### Fungicide

- LEIMAY®
- ORACLE®
- PULSOR®

#### Active ingredient for veterinary pharmaceuticals

- Fluralaner



### Pharmaceuticals

- LIVALO® (anti-cholesterol agent)
- LANDEL® (anti-hypertension agent)

#### Novel agent under development

- NIP-022 (thrombocytopenia treatment agent)
- NTC-801 (anti-arrhythmic agent)

## Chemicals



### Chemicals

- Melamine (adhesive agent for particle board)
- High purity chemicals
- AdBlue® (high-grade urea solution)
- FINEOXOCOL®

- TEPIC® (epoxy compound for LED sealants, solder resist, painting)

- Melamine cyanurate (flame retardant)

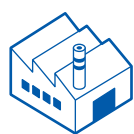
- HI-LITE® (chlorinated isocyanuric acid for sterilizing)

- Nissan Reishi (health food)



## Environmentally Friendly Products

We define environmentally friendly products as the products that reduce environmental impact across each of the processes below, from manufacture to distribution, use and disposal, or that play an important role in achieving that goal. We have set ourselves the goal of improving the percentage of our products that are environmentally friendly.



Manufacture



Distribution



Use



Disposal

i. Saving energy

iv. Reducing waste and environmental pollutants

ii. Reducing CO<sub>2</sub>

v. Purifying air and water

iii. Conserving resources (water, raw materials)

vi. Renewable (new) energy

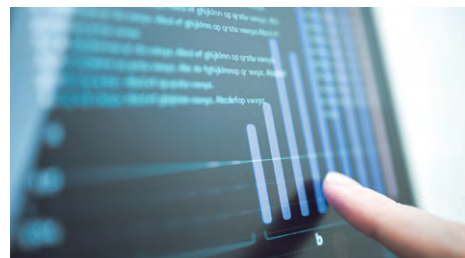
## Performance Materials

### HYPERTECH®

#### Nucleating agents for electroless plating

Nucleating agents make it possible to reduce the amount of metal used for wiring in items such as flexible printed substrates or touch panels by more than 90%.

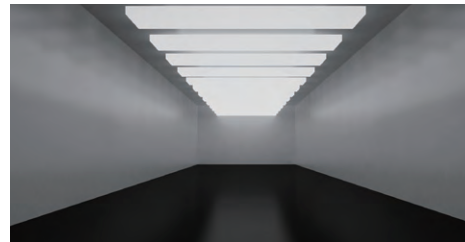
Metal wiring is made by forming a metal film across the entire surface of the substrate in a vacuum, and then removing unwanted parts with acid. HYPERTECH® makes it possible to draw wiring patterns, meaning that metal only adheres to drawn lines. This in turn minimizes the amount of metal plating required.



▲ Touch panel

#### Coating materials with ultra-high refractive index

OLED lighting is known as one of low environmental impact application. HYPERTECH® makes a film that is applied between the electrodes and substrate, or between the electrodes and light source of OLED and makes it possible to improve light efficiency from the light source by up to 20%. This product is transparent and heat resistant, and offers excellent adhesion to different substrate materials. Ease of application can also help to reduce manufacturing costs.



▲ OLED lighting (illustration purposes only)

### Inorganic Materials

#### SNOWTEX®, Aluminasol, Organo silica sol, NanoUse® ZR

Materials can be used for a wide range of purposes, including saving energy from transformers, improving the efficiency of natural energy, purifying emissions, and extending the life of motors.



▲ Purifying emissions (illustration purposes only)

## Agricultural Chemicals

### Compact agrochemical formulations

We supply lightweight and compact agrochemical formulations that contain a high concentration of active ingredients, including WG (Water dispersible) and Jumbo (floating granules, containing active ingredients, wrapped in a soluble film). This helps in ways such as reducing packaging materials, waste products, and CO<sub>2</sub> emissions from manufacturing and shipping.



▲ Comet WG



▲ Tenku Jumbo

## Chemicals

### AdBlue®

AdBlue® is a high-grade urea solution used in “urea SCR system”, a technology for purifying emissions. When sprayed onto emissions from diesel vehicles, it breaks down nitrogen oxide (NOx) into harmless nitrogen and water, which helps to reduce environmental impact. We supply AdBlue® in line with each customer's needs, in tank trucks, 200L drums, 1m<sup>3</sup> containers, or BIB (Bag-in Box, 20L, 10L).



▲ AdBlue®

### HI-LITE®

HI-LITE® is widely used to assist with environmental sanitation for purposes such as disinfecting and sterilizing pools and septic tanks. Having obtained certification under NSF / ANSI-60 (the standard for chemicals intentionally added to drinking water), there is new scope to expand the range of applications for HI-LITE® for sterilizing drinking water, such as applying in areas where standards of sanitation are insufficient, particularly in developing countries.



▲ Hygienic water supplies (illustration purposes only)

### Venus® Oilclean

Venus® Oilclean is a microorganism formulation that decomposes oils and fats in wastewater from food factories and other facilities. Compared to the pressurized floating facility, which is a typical oils and fats in wastewater treatment system, the facility using Venus® Oilclean significantly reduces odors and workload as well as waste with simple equipment. Some major food factories have reduced the amount of waste derived from oils and fats to almost zero by introducing this product.

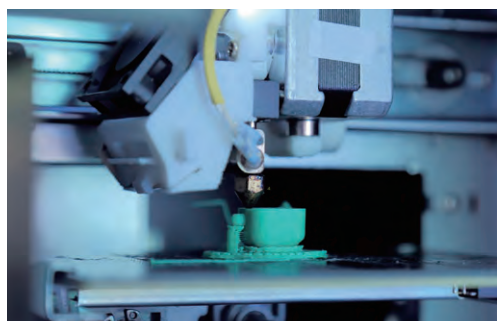


▲ Industrial water treated with wastewater (illustration purposes only)

## Advanced Materials & Planning

### ECOPROMOTE® Series

ECOPROMOTE® is a crystal nucleating agent for polylactate. Combining the properties of a bioplastic, made from plant instead of oil, and a biodegradable plastic that is broken down into water and carbon dioxide by microorganisms, polylactate is the foremost carbon neutral synthetic resin in terms of practical application. Uses are nonetheless limited due to issues relating to moldability and heat resistance. ECOPROMOTE® stimulates the growth of polylactate crystals, and can be used for high speed injection molding or extrusion molding without affecting transparency. As a result, it is increasingly being used for durable purposes such as electronic devices, printers and filaments in 3D printers.



▲ 3D printer

## Performance Materials

We will continue to expand the business by actively developing display, semiconductor and inorganic materials, as well as new materials for new fields.

### Display Materials

We continue to develop our display materials business, spearheaded by SUNEVER® polyimide-based LCD alignment coating materials and NHC® insulating hard coating materials, by catering to the growing needs of the display market, particularly in Asia.

### Semiconductor Materials

We provide ARC® (bottom anti-reflective coating materials), OptiStack®\* (multi layer process materials) and temporary bonding materials for 3D package, that are necessary for semiconductor manufacturing processes.

\*OptiStack® is a registered trade mark of Brewer Science, Inc.

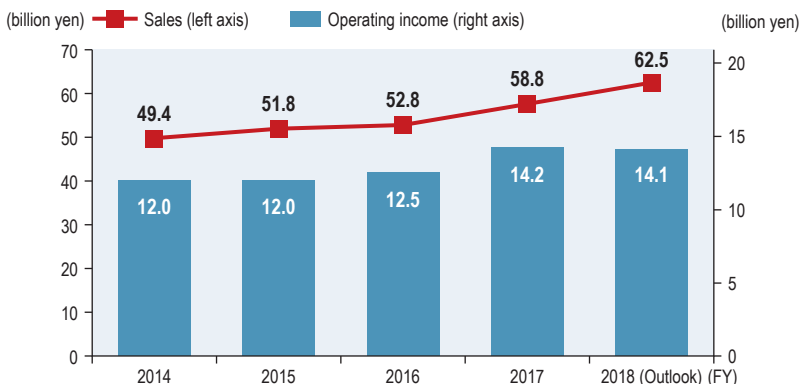
### Inorganic Materials

We have continuously provided nano-colloids, such as SNOWTEX® and organo silica sol, to variety of industries for many years using “Ultrafine Particle Control technology”, one of our core technologies. In these years, we have developed oilfield materials as new field for us.

### New Products

Our development focuses on next generation products that identify the future needs of customers.

## Business Results and Outlook



In FY2017, sales of display materials was strong in SUNEVER® for small to medium size displays, such as smart-phone. For semiconductor materials, sales of ARC® and OptiStack® increased due to the commencement of operations at new factories by some customers and recovery in capacity utilizations. In inorganic materials sales, both SNOWTEX® and organo silica sol / monomer sol performed well.

### TOPICS

#### Establishing Local subsidiary in Suzhou, China

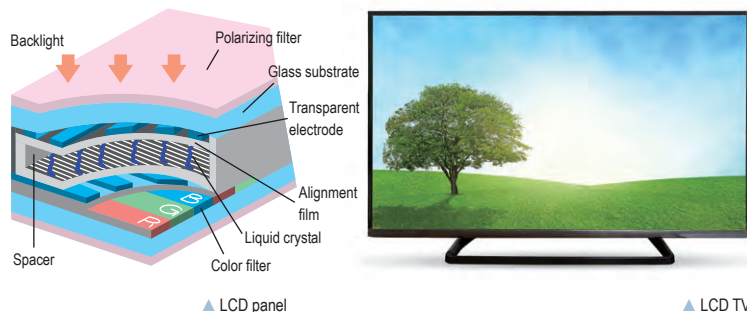
We established Nissan Chemical Materials Research (Suzhou) Co., Ltd. in July 2017 for China display market which is expected to grow in the future. We will strengthen our technical support and customer services, and aggressively develop products that meet market needs, with the aim of further expanding our business.



## Main Products

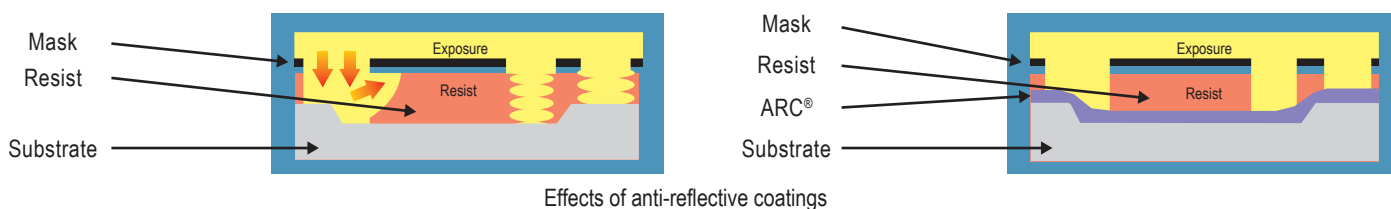
### SUNEVER®

SUNEVER® is a polyimide-based coating for LCD / flat panel displays. It is used to coat the surface of the outer glass panels, to align liquid crystal molecules in a certain direction. We offer various grades of this product for small-and medium-sized screens, such as LCD monitors, PCs, tablets and smartphones, in addition to those for the latest flat-panel LCD TVs.



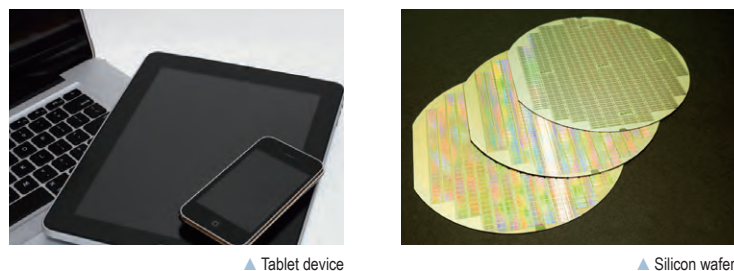
### ARC® (bottom anti-reflective coating)

ARC® is an anti-reflective coating developed for semiconductor lithography. It is used to coat the part under the photoresist, to resolve a number of issues with lithographic exposure such as reflection from varying substrate levels. This makes it possible to significantly reduce the device failure rate.



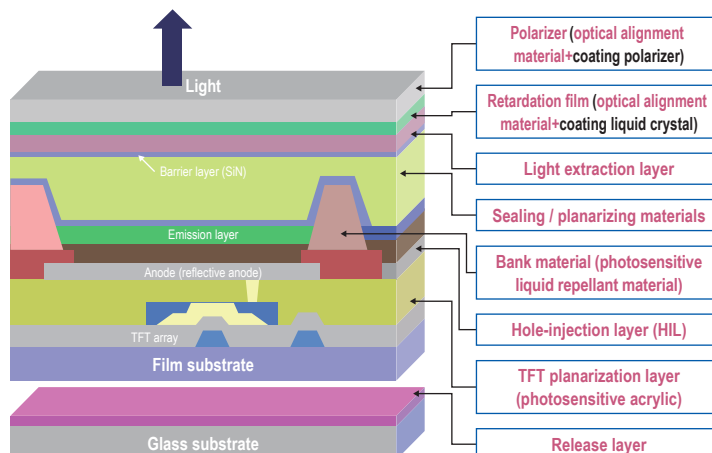
### SNOWTEX®, Organo silica sol

SNOWTEX® (colloid solution with nano-sized silica particles dispersed stably in water) and the organo silica sol (colloid solution with nano-sized silica particles dispersed stably in organic solvent) are used in a wide range of fields, including optical film coatings and electronic recording media abrasives. We have also developed monomer sol dispersed in epoxy and methacrylate. It can be used in solvent-free applications.



### OLED materials

We are focusing on developing markets for OLED, which is expected to grow in the future as a next-generation display. In addition to coating hole-injection layer materials and TFT planarizing film materials, we are currently moving forward with the development of distinctive peripheral materials, including bank materials that help ensure the uniformity of pixels during inkjet application, and optical alignment materials used for anti-reflective retardation films.



## Agricultural Chemicals

Provide a stable supply of food to people around the world. Provide agrochemicals that are environmentally friendly. This is what we aim to do.

We have integrated system from exploratory, research, development to manufacture and sales of new agricultural agents for mainstay crops around the world as well as those in Japan. We also develop agents in collaborative efforts, and actively acquire agents from other companies. We constantly work to expand our product lineup and sell our products in Japan and other countries.

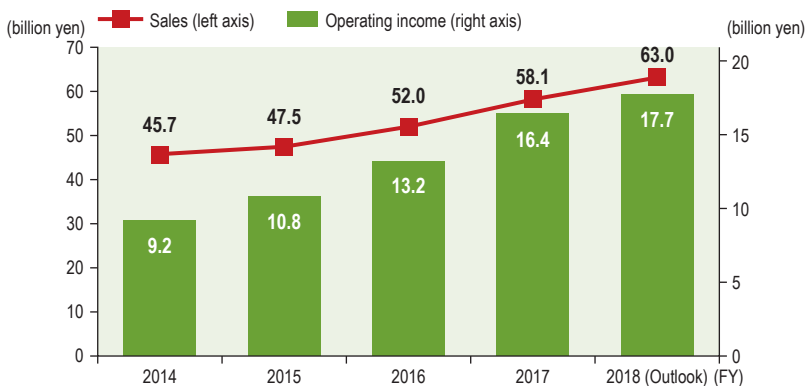
### Agrochemicals

We develop, manufacture, and sell herbicides, insecticides, fungicides, and other products used for the management of agricultural land and green land.

### Veterinary Pharmaceuticals

We develop and manufacture active pharmaceutical ingredients used in ectoparasiticides for companion animals.

## Business Results and Outlook



In FY2017, shipment of Fluralaner expanded and sales of ALTAIR® was strong. ROUNDUP® MAXLOAD contributed to higher revenues by launching new product ROUNDUP® MAXLOAD AL III that is more effective and persistent in weeding than conventional products. In addition, shipments of agrochemicals to overseas markets were strong.

## Main Products

### Herbicide

#### ALTAIR®

ALTAIR®, an active ingredient in herbicides for paddy rice, is a wide-spectrum herbicide that is highly effective in eliminating bulrush and cyperaceous perennial weeds. It is also effective for weeds that are resistant to conventional sulfonylurea-based herbicides. We market this product in Japan, South Korea and China.



▲ ALTAIR®

#### ROUNDUP® MAXLOAD, ROUNDUP® MAXLOAD AL・AL II・AL III

In 2002, we acquired the exclusive marketing rights to this product in Japan from Monsanto. While this herbicide kills most weeds, it has low toxicity to humans and animals and does not remain in the soil or in the environment. In addition to agricultural land, in 2011 we developed a shower-type “AL” that can be used as a household product. In 2016, we added a fast-acting “AL II” and in 2018, we launched “AL III” that is both fast-acting and persistent to address customer needs.



▲ ROUNDUP® MAXLOAD AL・AL II・AL III

## SIRIUS®

To meet the needs of farmers, we develop and sell a large number of one-shot herbicides for paddy rice. The main component of these herbicides is SIRIUS®, our proprietary active ingredient. We have been marketing these products in more than 20 countries for over 20 years.

## TARGA®

This herbicide controls gramineous weeds that affect broadleaf crops such as soy beans, rapeseed, beets, cotton and sunflowers. It is used in more than 40 countries, including India and countries in the United States and Europe.

## PERMIT®

This product has effect against cyperaceous weeds extremely. We market this product in Japan under the trade names of HICUT®, which is a herbicide for paddy rice in the mid to late term that is highly effective against the pesky weed *Eleocharis kuroguwai*, and INPOOL®, for lawns. We also market it as PERMIT® in more than 20 overseas countries as an herbicide for paddy rice, corn fields, sugar cane fields and lawns.

## ■ Insecticide

### STARMITE®

This acaricide prevents and eliminates spider mites from fruits, tea and vegetables. It is extremely safe for the natural enemies of spider mites and useful insects such as honey bees. In South Korea, it is used for fruits and vegetables, and in South America it is used for flowers.

### SANMITE®

This insecticide / acaricide is effective against spider mites and rust mites in fruit trees, as well as spider mites and whiteflies in vegetables. We also market this product in about 30 overseas countries.

## ■ Fungicide

### LEIMAY®, ORACLE®

These fungicides have specific activity for diseases caused by oomycetes and myxomycetes. We sell LEIMAY®, which is used as an atomizing agent for potatoes, grapes and vegetables, and ORACLE®, which is used for preventing and eliminating the root-knot disease of cruciferous vegetables and soil-borne diseases of potatoes, rice, vegetables and lawns. BESGREEN® meanwhile is designed to prevent diseases in lawns, and is sold in domestic and more than 20 overseas countries including Europe, South Korea and China.

### GREATAM®, PULSOR®

These products contain a fungicide that we acquired from Dow AgroSciences in 2010. We market GREATAM® for the sheath blight disease that affects paddy rice and IKARUGA® for large patch disease of lawn. We export and sell this product in overseas markets including China, South Korea, India and Brazil under the trade name of PULSOR®.

## ■ Active Ingredient for Veterinary Pharmaceuticals

### Fluralaner

A compound that we invented in-house, Fluralaner is one of the ingredients contained in BRAVECTO® (veterinary pharmaceuticals), developed by MSD Animal Health. We manufacture Fluralaner and then supply it to MSD Animal Health for use in as active ingredient for veterinary pharmaceuticals.



▲ STARMITE®

▲ LEIMAY®



▲ BRAVECTO®

## TOPICS

### Establishing Nissan Agro Tech India PVT. LTD.

India is world's sixth largest and one of the fastest growing agrochemical markets. Taking account of the market situation, we established a local subsidiary in July 2017 to strengthen sales, marketing, and R&D. We support sales promotion and development of our products with six people.

## Pharmaceuticals

We strive to develop better pharmaceuticals by making use of our cultivated technologies. Our products help preserve precious lives and deliver smiles to people around the world.

### Drug Discovery

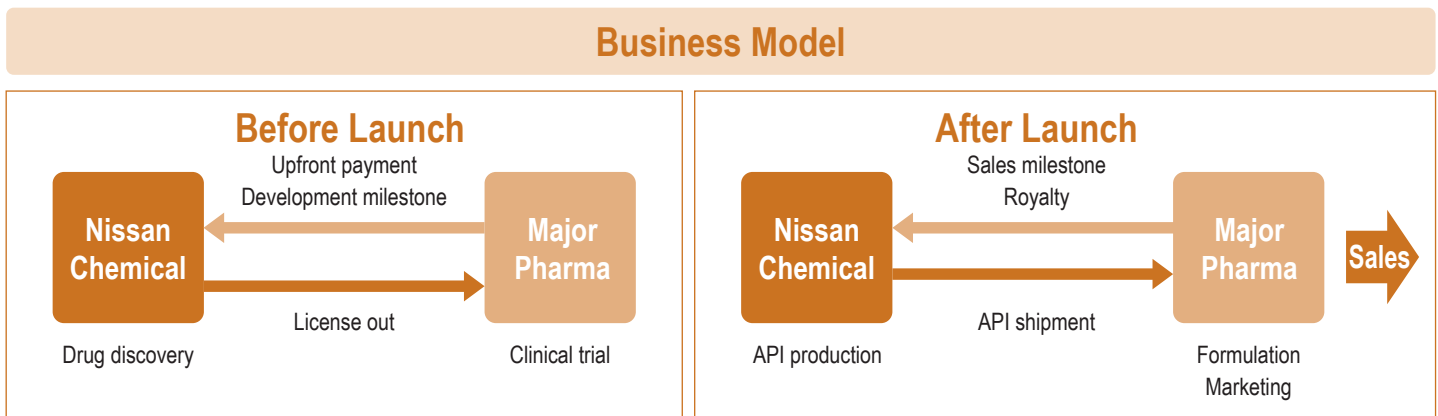
We first entered pharmaceutical business in 1982. Since then, we have continued to deal with challenges in the R&D of innovative new drugs, making full use of our strategically developed chemical compound library, our cutting-edge evaluation functions, and our fine organic synthesis technologies.

### Finetech®

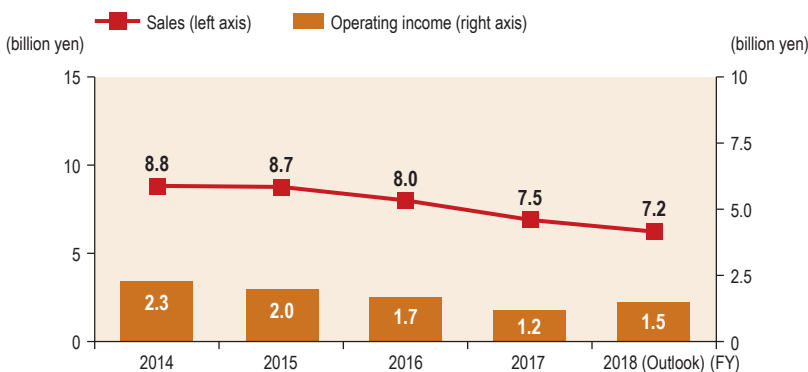
This business provides total support to customers for their R&D of active pharmaceutical ingredients (API). Specifically, we engage in the contracted development of manufacturing process in each one of the stages from pre-clinical to commercial production, as well as the contracted manufacture of API and intermediates in compliance with GMP.

## Features of Our Business

A Unique Business Model that Specializes in New Drug Discovery and the Manufacture of API without a Sales Force



## Business Results and Outlook



In FY2017, sales of API of LIVALO® to overseas markets increased, but sales to domestic market decreased due to an increase in sales of generics. On the other hand, Finetech® posted strong sales.



## Main Products

### Pitavastatin calcium (LIVALO®)

This is a statin agent that greatly reduces LDL cholesterol and causes fewer drug-interactions, offering the advantage of safety. This agent is recognized as one of the “strong statins” in clinical practice, and it is distributed by Kowa Pharmaceutical Co. Ltd. in Japan. It has also been released in the United States, as well as Latin American, European, and Asian countries. There are plans to release it in other countries and territories in the future.

### Efonidipine hydrochloride (LANDEL®, FINTE®)

This is a dual type Calcium antagonist that blocks not only L-type calcium channels, but also T-type channels. This agent has shown to have a positive effect on hypertension and angina pectoris. In addition, the agent is expected to provide a renal-protective and cardio-protective benefits. LANDEL® is distributed by Zeria Pharmaceutical Co., Ltd. and Shionogi & Co., Ltd. in Japan, and FINTE® is distributed by Green Cross Co. in South Korea.

## Novel Agent under Development

### NIP-022 (thrombocytopenia treatment agent)

This activates the thrombopoietin receptor, which is a hematopoietic factor. This is orally administrable drug and enables to accelerate platelet production. It has the potential to be a drug for treating every kind of thrombocytopenia.

### NTC-801 (anti-arrhythmic agent)

This is an orally administrable antiarrhythmic agent that inhibits the acetylcholine-activated potassium channel current (IKACH). NTC-801 is expected to be used as an atrial selective agent for the treatment of atrial fibrillation because IKACH channels are apparent in the atrium but not in the ventricle.



▲ Compound library at Biological Research Laboratories

## Finetech® Business

### Manufacturing API and intermediates (from pre-clinical to commercial production stages, including manufacturing in compliance with GMP)

We manufacture API and intermediates by establishing manufacturing methods that can be scaled up.

### Process research (route scouting, optimization and scale-up)

We establish production processes that can be scaled-up through quantitative reaction analysis and confirming the stability data of every process. We suggest cost-competitive synthesis routes by only disclosing the structural formula.

### Supplying API of generics

We develop and sell API capable of high levels of activity in small amounts, such as the prostaglandin (PG) class of ingredients and vitamin D<sub>3</sub> (VD<sub>3</sub>), by making use of our cultivated technologies for handling high active API and our column equipment capable of high levels of refinement.



▲ Finetech® development plant

## TOPICS

### Challenges in manufacturing API of constrained peptides

We invested 900 million yen in a third-party allocation of shares of PeptiStar Inc., which is aiming to establish a stable supply system for API of constrained peptides. In the future, we will work with PeptiStar Inc., to accelerate R&D on new liquid-phase methods of constrained peptides in which are expected to reduce pharmaceutical manufacturing costs, and expand our contracted manufacturing and process researching services of pharmaceuticals.

## Chemicals

The development of products focused on high-level customer needs is another important mission.

### Basic Chemicals

We provide products to meet a wide range of demands, focusing on melamine, sulfuric acid, nitric acid, ammonia and other industrial chemicals. We also provide high purity chemicals for washing semiconductors.

### Fine Chemicals

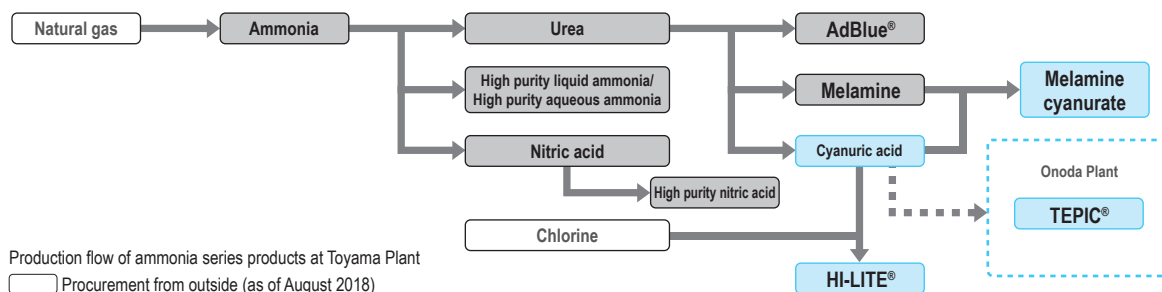
This business focuses on environmental chemicals such as TEPIC® (a special epoxy compound for sealants), melamine cyanurate and PHOSMEL® (non-halogen flame retardants), phenylphosphonic acid (a surface modifier), and HI-LITE® (sterilizing agent and disinfectant).

### New Products

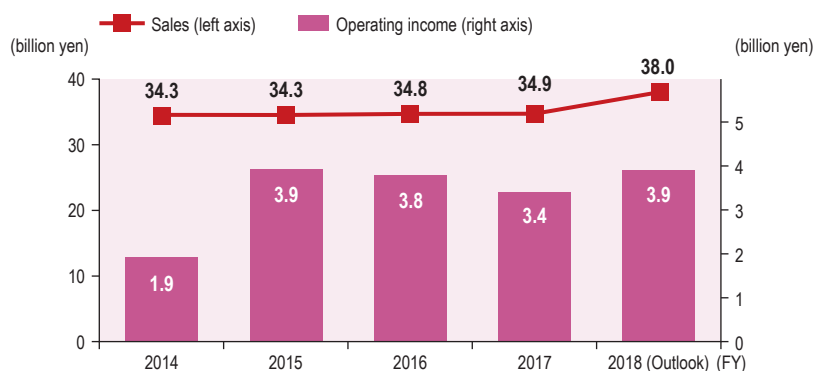
To better meet customer needs, we are working to fully enhance our product lineup, which focuses on new grade TEPIC®.

## Features of Our Business

### Supplying Derivatives that Use Ammonia as Main Raw Material



## Business Results and Outlook



In FY2017, sales of melamine decreased and sales of high-purity sulfuric acid increased in basic chemicals. In fine chemicals, shipment of TEPIC® was strong, while sales of HI-LITE® decreased. Profit margins for the entire business also declined due to higher fuel and feedstock prices.

## Main Products

### Melamine

This is widely used as an adhesive agent for plywood, laminated sheets, molded products, resin finish for fabric and paper, and paint. It is highly aesthetic and offers a substantial level of quality.

### High purity chemicals

Our products used for semiconductors / LED require an extremely high level of purity. We provide sulfuric acid, nitric acid, and ammonia to customers, who hold our products in high regard.

### AdBlue® (High-grade urea solution)

This is a solution of urea in demineralized water used as an operating fluid in diesel-powered freight trucks to purify emissions. We have established and expanded our original supply system addressing customer needs.

### FINEOXOCOL®

This is our unique, highly branched and saturated fatty alcohols and acids product with a long chain alkyl group consisting of carbon 16 to 20. It has been used for various esters, lubricants, cosmetics, and ink modifiers.

### TEPIC®

This tris (2, 3-Epoxy propyl) isocyanurate is a special tri-functional epoxy compound consisting of a triazine ring and three glycidyl groups. The triazine ring provides excellent outdoor durability due to its low UV absorption, while the glycidyl groups provide outstanding heat resistance by densely cross-linking with resins.

### Melamine cyanurate (MC)

This is a compound of melamine and isocyanuric acid. We provide a high quality product by integrating production from raw materials. MC is highly nitrogen containing compound, which offers superb thermal stability up to 300°C. It is used as a flame retardant or an auxiliary flame retardant for various engineering plastics such as nylon resins. It also exhibits outstanding flame retardation when used with flame retardants such as phosphorus systems or metal hydroxide, and has been added to various plastics.

### HI-LITE®

Chlorinated isocyanurate is the main ingredient in this product, which is used for sterilization and disinfection of swimming pools and water purification tanks, and thus contributing to public hygiene.

### Nissan Reishi

Nissan Reishi is a safe Japanese-made health food created through the domestic processing of Reishi mushrooms grown in Japan.



▲ Plywood



▲ LED



▲ AdBlue® truck



▲ HI-LITE® in use



▲ Reishi

## Advanced Materials & Planning

Tackling challenges in new fields with an “undaunted spirit”

Our mission is to create new materials and businesses that will be our pillars for future growth of performance materials and life sciences business. We work on developing new materials that meet market needs by making full use of our core technologies, “Fine Organic Synthesis”, “Functional Polymer Design”, “Ultrafine Particle Control”, “Biological Evaluation” and “Optical Control”. We also promote collaboration between industry, government, and academia, such as alliances with distinguished companies and joint research with universities, to generate actual demand at an early stage.

### Main and New Products

#### Life Science Materials

##### FCeM® series

FCeM® series are the base materials for three dimensional cell cultures and enable to prepare the cells efficiently and extensively. Preparation Kit can cultivate large amounts of iPS / ES cells by floating cultures of cells in three dimensional state. Cellhesion® enables mass culture of these cells as a scaffold for vaccines and antibody-producing cells and mesenchymal stem cells.



▲ Preparation Kit



▲ Cellhesion®

##### NANOFIBER GEL®

This is an additive for cosmetics and topical agents that is friendly to people and the environment, consisting of fatty acids and amino acids. It can be used in most cosmetic items. By adding to the active ingredients, the moisturizing effect and the permeation promotion effect are achieved. In addition, this product is available to promote protection effect for hair and skin.



▲ Spray



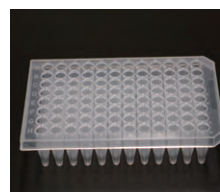
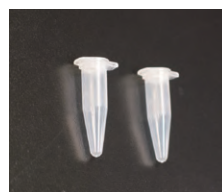
▲ Shampoo



▲ Foundation

##### prevelex® (Material for preventing the adhesion of biomolecules)

Applicable from experiments and research to regenerative medicine, prevelex® is an ultra-thin film material with nanometer-level thickness which allows the easy coating of objects of various shapes. It can be coated on PP, COP and PDMS that had been difficult to coat. We are promoting the development of customers in the medical equipment field by taking advantage of its characteristics to prevent the adhesion of biomaterials such as exosome, as well as cell adhesion and protein adsorption.



▲ Consumables for pharmaceutical research

##### AQUAJOINT®

AQUAJOINT® is a two-liquid, room temperature solidified, elastic hydrogel. By merely mixing the two aqueous solutions and allowing them to stand at room temperature, water-soluble components form a three-dimensional network and gel. These aqueous solutions with additive can make mold and can be formulated as customer needs.



▲ AQUAJOINT®

## Environmental Harmony Materials

### ECOPROMOTE® (crystal nucleating agent for polylactate)

This forms a stable crystal nucleus during the polylactate molding process to significantly increase the speed of crystallization. It produces fine, even crystals, helping to improve the molding cycle and enhance the heat resistance and transparency of molded products.

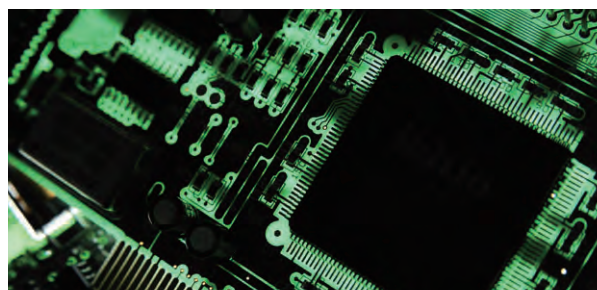


▲ Bioplastic products (illustration purposes only)

## Optical Materials

### SUNCONNECT®

This is liquid organic-inorganic hybrid resin materials that exhibit high thermal stability and near-infrared transparency. Suitable for imprinting methods, photo lithography and other processes. It is used for optical interconnects for purposes such as optical waveguides and lenses for optical connectors.

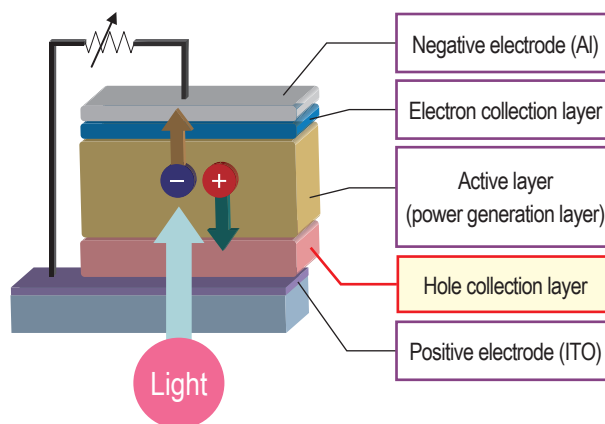


▲ Optical printed circuit board (illustration purposes only)

## Battery Materials

### Organic Thin-film Solar Cell Material

We are developing the hole collection layer of organic thin-film solar cells. The hole collection layer collects holes from excitons generated in the active layer and then transports them to the cathode. At the same time, it blocks the inflow of electrons. It plays an important role in improving power generation efficiency. We will accelerate market development by taking advantage of the features of this material, such as the capability of forming highly flat thin film, preparation at the HOMO level, and compatibility with various printing methods.



▲ Example for Organic Thin-film Solar Cell

### FairCurrent®

FairCurrent® is undercoat material for lithium-ion batteries (LiB) containing highly dispersed nanomaterial. The thin film of FairCurrent® coated on current electrode enables LiB to improve energy density and life by reduction of electric resistance and increasing adhesion to electrode, and applicable for the automotive LiB.



▲ Electric vehicle

## Research and Development

We strive to further refine the core technology we have cultivated throughout our long history, and develop new products, technologies, and businesses.

### Chemical Research Laboratories

Chemical Research Laboratories is Nissan Chemical's core R&D site, and is responsible for our corporate research. It researches and develops agrochemicals and pharmaceuticals that utilize the fine organic synthesis technology we have cultivated over the years, research on company-wide processes, and material analysis research.

#### Major research contents

- Discovery of agrochemicals and pharmaceuticals, and the development of agrochemical formulations and active pharmaceutical ingredients
- Development of new organic materials and polymer materials
- Process development of new products and candidates
- Material analysis and computational science that support research



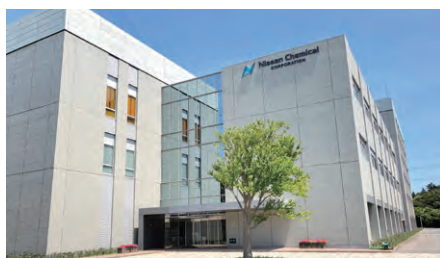
▲ Funabashi, Chiba

### Materials Research Laboratories

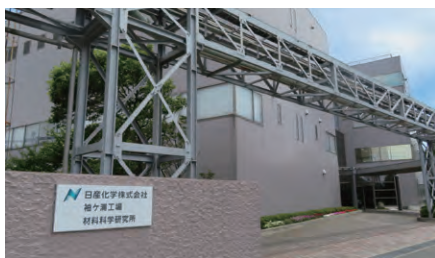
Materials Research Laboratories creates highly unique new materials, allowing us to respond quickly to increasingly sophisticated and diverse market needs. At the same time, the Laboratories focuses their efforts on researching next-generation materials in an effort to create new markets.

#### Major research contents

- Material development based on technologies for the design, synthesis, and evaluation of functional polymers and composite materials
- Development of new materials intended for new display technologies and semiconductor process technologies
- Manufacturing research and the application development of materials such as inorganic particulates



▲ Funabashi, Chiba



▲ Sodegaura, Chiba



▲ Toyama, Toyama

### Biological Research Laboratories

Biological Research Laboratories serves as a place for life science research, such as evaluation research related to the usefulness and safety of agrochemicals, pharmaceuticals and medical materials.

#### Major research contents

- Efficacy tests, safety tests, and residue tests of agrochemicals in greenhouses and on farmland
- Pharmacological tests, safety tests and pharmacokinetics tests of pharmaceuticals, ranging from those on the gene level to those based on pathological models
- Development of medical materials such as cell culture media, stem cell amplifiers, and coating materials for medical equipment

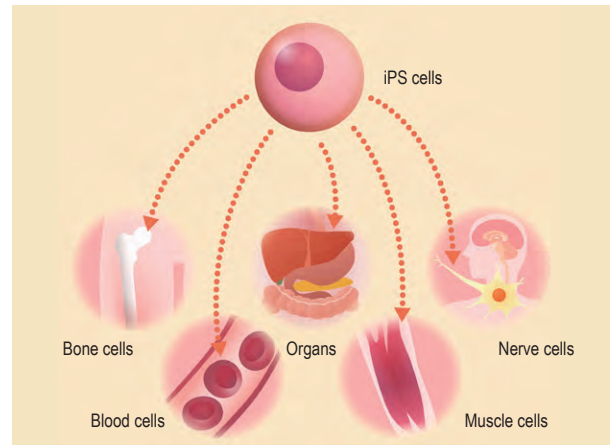


▲ Shiraoka, Saitama

## Promotion of Industry-Government-Academia Collaborations

While we deepen our proprietary technologies, we also promote the creation of new materials and introduction of new technologies through industry-government-academia collaborations. As part of these activities, we are participating in a project of the Japan Agency for Medical Research and Development (AMED), which was founded in April 2015, and are working on the development of a cell manufacturing and processing system for the industrialization of regenerative medicine. We are conducting joint development with Kyoto University, and have discovered a technology that leads to the low-cost manufacturing of iPS cells. We will continue to contribute to the development of regenerative medicine while also proceeding with state-of-the-art research.

In addition, as an industry-academia collaboration, we have set up a laboratory in FiaS (Fukuoka Industry-Academia Symphoncity) since September 2008 as a base for introducing materials seeds and cutting-edge technologies at Kyushu University.



▲ Regenerative medicine (illustration purposes only)



▲ Fukuoka Industry-Academia Symphoncity

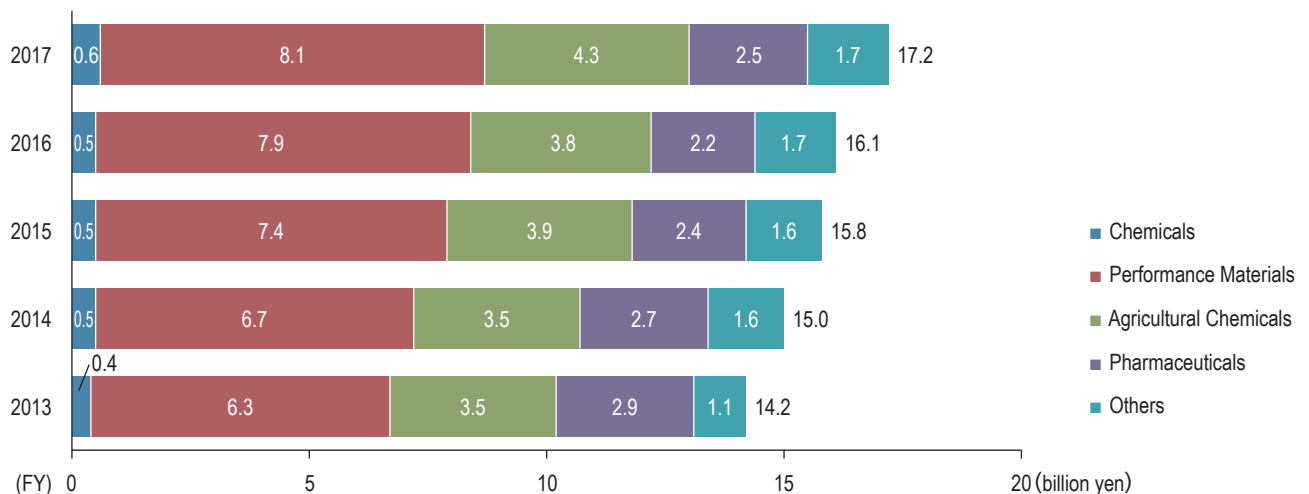
### TOPICS

Since FY2017, we have been participating in projects in NARO (National Agriculture and Food Research Organization), and are researching efficient agrochemical manufacturing processes using flow reactors that can carry out chemical reactions in fluids.

## R&D Expenses

We consider R&D is the source of growth, and have intensively invested our management resources in R&D.

Over the last five years, R&D expenses have totaled 78.3 billion yen. The percentage of our expenses in Performance Materials and Life Sciences (Agricultural Chemicals and Pharmaceuticals) is accounting for 47% and 40% respectively.



# Corporate Governance

## Directors and Auditors

### Directors



Representative Director, President & CEO  
**Kojiro Kinoshita**

Attendance at the Board Meeting 12/12

- 1977 Joined the Company
- 2002 Director, Head of Corporate Planning Department
- 2006 Managing Director
- 2008 Representative Director, President & CEO (to the present)



Director, Senior Executive Vice President  
**Junichi Miyazaki**

Attendance at the Board Meeting 12/12

- 1974 Joined The Industrial Bank of Japan, Limited (currently Mizuho Bank, Ltd.)
- 2000 General Manager of International Department of The Industrial Bank of Japan, Limited (currently Mizuho Bank, Ltd.)
- 2003 Corporate Auditor of Mizuho Corporate Bank, Ltd. (currently Mizuho Bank, Ltd.)
- 2005 Managing Executive Officer of Kowa Real Estate Co., Ltd.
- 2005 Managing Director of Kowa Real Estate Co., Ltd.
- 2006 Joined the Company, Advisor
- 2006 Director
- 2007 Director, Head of Corporate Administration Department
- 2008 Managing Director
- 2011 Senior Managing Director
- 2013 Director, Senior Executive Vice President (to the present)



Director, Senior Executive Vice President  
**Hiroyoshi Fukuro**

Attendance at the Board Meeting 12/12

- 1979 Joined the Company
- 2004 Director, Head of Electronic Materials Research Laboratories
- 2011 Managing Director
- 2013 Senior Managing Director
- 2014 Director, Senior Managing Executive Officer
- 2018 Director, Senior Executive Vice President (to the present)



Director, Managing Executive Officer  
**Katsuaki Miyaji**

Attendance at the Board Meeting 12/12

- 1985 Joined the Company
- 2010 Director, Head of Chemical Research Laboratories
- 2011 Director, Head of Advanced Materials & Planning Department
- 2014 Executive Officer, Head of Electronic Materials Research Laboratories
- 2014 Executive Officer, Head of Materials Research Laboratories
- 2016 Managing Executive Officer, Head of Corporate Planning Department
- 2016 Director, Managing Executive Officer (to the present)



Director, Managing Executive Officer  
**Takashi Honda**

Attendance at the Board Meeting 12/12

- 1981 Joined the Company
- 2012 General Manager of Planning & Development Department, Agricultural Chemicals Division
- 2014 Executive Officer, Deputy Head of Agricultural Chemicals Division, General Manager of Planning & Development Department, Agricultural Chemicals Division
- 2017 Managing Executive Officer, Head of Agricultural Chemicals Division
- 2017 Director, Managing Executive Officer (to the present)



Director, Managing Executive Officer  
**Hitoshi Suzuki**

(newly appointed)

- 1985 Joined the Company
- 2007 General Manager of Semiconductor Materials Department, Electronic Materials Division
- 2010 General Manager of Semiconductor Materials Research Department, Electronic Materials Research Laboratories
- 2012 General Manager of Semiconductor Materials Department, Performance Materials Division
- 2013 Deputy Head of Performance Materials Division
- 2013 Director, Deputy Head of Performance Materials Division
- 2014 Executive Officer, Deputy Head of Performance Materials Division
- 2016 Executive Officer, Head of Materials Research Laboratories
- 2018 Managing Executive Officer, Head of Performance Materials Division
- 2018 Director, Managing Executive Officer (to the present)





Outside Director  
**Tisato Kajiyama**

Attendance at the Board Meeting 12/12

- 1969 Post Doctor Course, The University of Massachusetts Amherst, USA
- 1984 Professor of Faculty of Engineering at The Kyushu University (currently National University Corporation Kyushu University)
- 2001 President of The Kyushu University
- 2008 President of Independent Administrative Institution Japan Student Services Organization
- 2010 Outside Corporate Auditor of the Company
- 2011 Chairman, Board of Trustees and President of Public University Corporation Fukuoka Women's University (to the present)
- 2014 Outside Director of the Company (to the present)



Outside Director  
**Tadashi Ohe**

Attendance at the Board Meeting 11/12

- 1969 Qualified for attorney-at-law
- 1989 Instructor for the Legal Training and Research Institute of Japan (court representation in civil proceedings)
- 1994 Outside Corporate Auditor of Canon Inc. (to the present)
- 2004 Outside Corporate Auditor of Marui Group Co., Ltd. (to the present)
- 2006 Outside Corporate Auditor of Kao Corporation
- 2011 Outside Director of JECO Co., Ltd. (to the present)
- 2015 Outside Director of the Company (to the present)

**Auditors**

Corporate Auditor

**Yasuyuki Nakajima**

Attendance at the Board Meeting 12/12

Attendance at the Board of Corporate Auditors' Meeting 12/12

- 1979 Joined the Company
- 2008 General Manager of Semiconductor Materials Research Department, Electronic Materials Research Laboratories
- 2008 Associate Executive Officer, General Manager of Semiconductor Materials Research Department, Electronic Materials Research Laboratories
- 2010 Associate Executive Officer, General Manager of Semiconductor Materials Research Department, Electronic Materials Division
- 2015 Corporate Auditor of the Company (to the present)

Outside Corporate Auditor

**Norihiro Suzuki**

Attendance at the Board Meeting 12/12

Attendance at the Board of Corporate Auditors' Meeting 12/12

- 1983 Joined The Norinchukin Bank
- 2003 General Manager of Naha Branch
- 2008 General Manager of Cooperative Finance & Administration (Kanto Area) Div.
- 2010 Seconded to Eiraku Co., Ltd. as President (currently Norinchukin Facilities Co., Ltd.)
- 2012 Managing Director of The Norinchukin Bank
- 2014 Director of Nochu Bussiness Support Co., Ltd., and Director of Nochu Information System Co., Ltd.
- 2016 Outside Corporate Auditor of the Company (to the present)

Outside Corporate Auditor

**Shuichi Takemoto**

Attendance at the Board Meeting 10/10

Attendance at the Board of Corporate Auditors' Meeting 10/10

- 1982 Joined The Fuji Bank, Limited
- 2002 Deputy General Manager, IT & Systems Control Department of Mizuho Bank, Ltd.
- 2004 General Manager, Human Resources Division of Mizuho Information & Research Institute, Inc.
- 2008 General Manager, Fukuoka Branch of Mizuho Bank, Ltd.
- 2009 General Manager, IT & Systems Planning Department of Mizuho Trust & Banking Co., Ltd.
- 2010 Executive Officer, IT & Systems Planning Department of Mizuho Trust & Banking Co., Ltd.
- 2011 Managing Executive Officer of Mizuho Trust & Banking Co., Ltd.
- 2013 Managing Executive Officer of Mizuho Trust & Banking Co., Ltd., and Managing Executive Officer of Mizuho Financial Group, Inc.
- 2014 Deputy President of Mizuho Private Wealth Management Co., Ltd.
- 2017 Advisor of Mizuho Trust & Banking Co., Ltd.
- 2017 Outside Corporate Auditor of the Company (to the present)

Outside Corporate Auditor

**Noriyuki Katayama**

Attendance at the Board Meeting 12/12

Attendance at the Board of Corporate Auditors' Meeting 12/12

- 1990 Qualified for attorney-at-law, Joined the law office of Nagashima & Ohno (currently Nagashima Ohno & Tsunematsu)
- 1996 Qualified for attorney-at-law in New York State, USA
- 1996 Joined Tokyo City Law & Tax Partners
- 2003 Joined City-Yuwa Partners (to the present)
- 2004 Statutory Auditor of Deutsche Asset Management (Japan) Limited (to the present)
- 2005 Statutory Auditor (part-time) of Deutsche Securities Junbi K.K. (currently Deutsche Securities Inc.)
- 2006 Outside Director of Accordia Golf co., Ltd.
- 2009 Visiting Professor of Toyo University Law School
- 2013 Supervisory Director of SIA REIT, Inc. (currently One REIT, Inc.)
- 2014 Examiner for the preliminary bar examination
- 2014 Outside Corporate Auditor of the Company (to the present)
- 2017 Supervisory Director of HEIWA REAL ESTATE REIT, Inc. (to the present)
- 2018 Outside Director of Nippon Denki, Ltd. (to the present)

## Basic Philosophy

We think of corporate governance as a mechanism that ensures sound, efficient management to provide stakeholders with sustainable, medium- to long-term profits. Based on this idea, we strive to ensure management decisions are made promptly, and work to clarify the management responsibility and responsibility for executing operations. At the same time, we take initiatives for strengthening the management's monitoring function, compliance, risk management, and internal control system under our Board of Directors and Board of Corporate Auditors, whose members include highly independent outside officers.

## Corporate Governance System

### Execution and supervision of operations

By introducing a system with executive officers, we clarify the management's function of prompt decision-making and supervision and the function of executing operations, thereby strengthening both. We also strive to improve management's capabilities to develop and execute our management strategies. In addition, we have set a one-year term for each director and executive officer, thereby clarifying the management responsibility and the responsibility for executing operations.

### Board Meeting

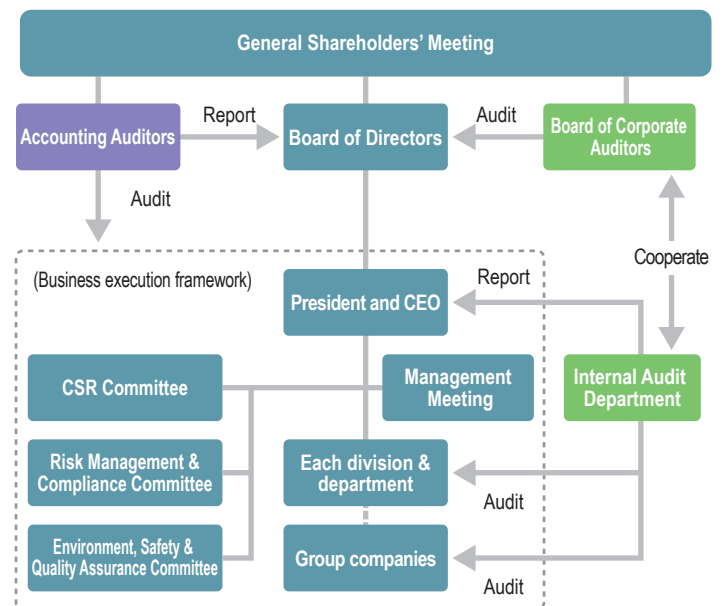
Our board meets monthly in principle, to resolve important management matters. It also supervises the execution of operations by directors and executive officers. We ensure that important management matters are determined through careful deliberations at the board meetings or management meetings in our efforts to eliminate or reduce business risks. In addition, the details of decisions made at the management meetings and the results of business executions based on decisions made at the board meetings, etc. are reported to the Board of Directors to enhance the supervising function of the board meeting. The Company further strives to ensure and improve effectiveness in execution of roles and responsibilities of the Board of Directors by conducting the effectiveness evaluation on the overall Board of Directors every fiscal year.

### Internal Audit

We have the Internal Audit Department, which conducts fair and independent internal audits in accordance with the "Nissan Chemical Group Internal Audit Rules". Business activities are checked by the Finance & Accounting, Legal, Intellectual Property, and Environment, Safety & Quality Assurance Departments, with each applying its respective expertise.

### Audit by Corporate Auditors

We have established the Board of Corporate Auditors. In accordance with auditing plans formulated by the Board of Corporate Auditors, corporate auditors audit the execution of directors' operation by participating in the board meetings and other important meetings, and by regularly visiting each division / department of the Head Office and plant / laboratory to exchange opinions.



### Accounting Audit

We have appointed the Yaesu Audit Company as our accounting auditor. They audit at the end of each fiscal year, and during the fiscal year as necessary.

### Support for Outside Directors and Corporate Auditors

The Corporate Planning Department supports outside directors by giving them prior explanations of the contents of the agenda and other matters to be discussed at the board meetings, and serves as a contact for inquiries. For outside corporate auditors, we have appointed audit assistants in response to requests from them. Audit assistants are employees who help outside corporate auditors fulfill their duties efficiently and smoothly. They serve as coordinators for holding internal audits, Board of Corporate Auditors' meetings, and other meetings, help outside corporate auditors conduct audits, and collect and provide information to them.

## Policy and Procedures in the Nomination of Officer Candidates

Decisions regarding the nomination of candidates for directors and corporate auditors are made at board meetings attended by outside directors and proposed at the general shareholders' meeting. In addition, nominations of corporate auditor candidates are approved by the Board of Corporate Auditors in advance.

### Nominate Policy

	Policy	Number stipulated in the Articles of Incorporation	Current number	Number of outside officers included in the figure on the left
Directors	<p>We operate business activities globally in diverse fields, including chemicals, performance materials, agricultural chemicals, and pharmaceuticals. Accordingly, in nominating candidates for our directors, we consider the balance between knowledge, experience, capabilities, and other elements of the overall board of directors and its diversity to ensure that our directors can make decisions regarding the above business activities and supervise the execution of operations in an appropriate and flexible manner.</p> <p>&lt;Inside Directors&gt; Human resources who have expertise, knowledge and other capacities in each business field such as corporate planning, personnel, finance &amp; accounting, research and development, production technology, environment, safety &amp; quality assurance and others.</p> <p>&lt;Outside Directors&gt; Human resources who are capable of giving opinions proactively, raising questions and giving advice on growth strategies, the enhancement of governance and other issues from the viewpoints of various stakeholders and society.</p>	12	8	2 (2)
Corporate Auditors	Human resources with experience and knowledge in a wide range of fields including finance & accounting who are capable of giving opinions and advice to the management from a fair and neutral standpoint, in addition to auditing the execution of operations.	5	4	3 (1)

The figure in ( ) indicates the number of directors / corporate auditors designated as independent officers

### Appointment of Outside Officer

	Name	Reason for appointment
Outside Directors	Tisato Kajiyama Appointed in June 2014	Dr. Kajiyama has acquired as the President of Kyushu University, the President of the Independent Administrative Institution Japan Student Services Organization and the President of Public University Corporation Fukuoka Women's University. We believe that he has reflected his broad range of knowledge, experience and expertise as a doctor of engineering in our corporate management with objective and neutral standing-point, and will continue to fulfill the duties appropriately.
	Tadashi Ohe Appointed in June 2015	We believe that Mr. Ohe has reflected his extensive experience, including his experience of outside director at several companies and expertise as attorney-at-law in our corporate management with objective and neutral standing-point, and will continue to fulfill the duties appropriately.
Outside Corporate Auditors	Norihiro Suzuki Appointed in June 2016	Mr. Suzuki has a wide range of knowledge, including extensive experience and finance expertise those are cultivated through many years of business at financial institutions. We believe that he has reflected his knowledge in our corporate audit with objective and neutral standing-point, and will continue to fulfill the duties appropriately.
	Shuichi Takemoto Appointed in June 2017	Mr. Takemoto has a wide range of knowledge, including extensive experience and finance expertise those are cultivated through many years of business at financial institutions. We believe that he has reflected his knowledge in our corporate audit with objective and neutral standing-point, and will continue to fulfill the duties appropriately.
	Noriyuki Katayama Appointed in June 2014	Mr. Katayama has an extensive experience including the experience of outside director / auditor at several companies and expertise as attorney-at-law. We believe that he has reflected his knowledge in our corporate audit and will continue to fulfill the duties appropriately.

### Number of Major Meetings and Attendances (FY2017)

Board Meeting	12 times	Board of Corporate Auditors' Meeting	12 times
Attendance of outside directors at board meetings	96%	Attendance of outside corporate auditors at board of auditors' meetings	100%
Attendance of outside corporate auditors at board meetings	100%		

## Officers' Remuneration

The fundamental principle in officers' remuneration is to maintain its system that is in line with management policy by ensuring that officers contribute to increasing operating performance on a continual basis over the mid- to long-term and toward increasing the overall value of the group, thereby meeting shareholder expectations. At the same time, the basic policy is to set remuneration at an appropriate level, taking into account such factors as the management environment, operating performance and consistency with the treatment of employees.

The remunerations of individual directors are determined at the board meeting attended by outside directors as well within the total amount determined by resolution of the general shareholders' meeting. The remunerations of individual corporate auditors are determined through discussions by corporate auditors.

Officer	Number of officers	Remuneration (million yen)
Directors (excluding outside directors)	9	321
Corporate Auditors (excluding outside corporate auditors)	1	27
Outside officers	6	80
<b>Total</b>	<b>16</b>	<b>428</b>

(Note) The above number of officers and remuneration include remuneration for two directors and one corporate auditor who retired at the close of the 147th general shareholders' meeting held on June 28, 2017.

## Analysis and Evaluation of the Effectiveness of the Overall Board of Directors (Effectiveness Evaluation of Boards)

We consider the primary roles and responsibilities of the Company's Board of Directors as follows and annually analyze and evaluate whether the roles and responsibilities are fulfilled. In order to ensure the neutrality and objectivity of the executioner of the effectiveness evaluation, evaluation is conducted every few years by third-party that is not related to the Company and interests. Effectiveness evaluation in FY2017 was conducted with the cooperation of external organization.

### The Primary Roles and Responsibilities of the Board of Directors

- (1) Establishing a strategy for achieving sustainable growth and increasing the Company's corporate value over the medium to long-term, and facilitating the execution of the foregoing
- (2) Providing appropriate support for risk-taking by the management by developing an enhanced internal control system and other systems
- (3) Strengthening the swift management decision-making and oversight function and the execution function through clarification of both function
- (4) Further enhancing management transparency, soundness and objectivity through, among other efforts, appointment of Outside Officers who monitor and oversee the management from external viewpoints

### Evaluation Procedures

The Company prepared a questionnaire for directors and corporate auditors and analyzed the results of their responses, and conducted individual interviews with all directors and corporate auditors. Based on the results of these responses and interviews, all independent directors (two outside directors and one outside corporate auditor), the President, the Vice President, the Director and Head of the Corporate Planning Department, and external organizations analyzed and evaluated at the meeting of exchange of ideas. The results of the meeting were discussed and summarized at the board meeting.

### Evaluation Results

As a result of deliberations by the board meeting, it is concluded that the Board of Directors assured the effectiveness considering its structure, operation and appropriate content to discuss. Implemented countermeasures against the results of effectiveness evaluation implemented in FY2016 were also taken into account. However, it is necessary to assess following items as future initiatives at the boards' effectiveness evaluation later than 2018 and improve subsequently and take remedial action as necessary.

### Future Initiatives

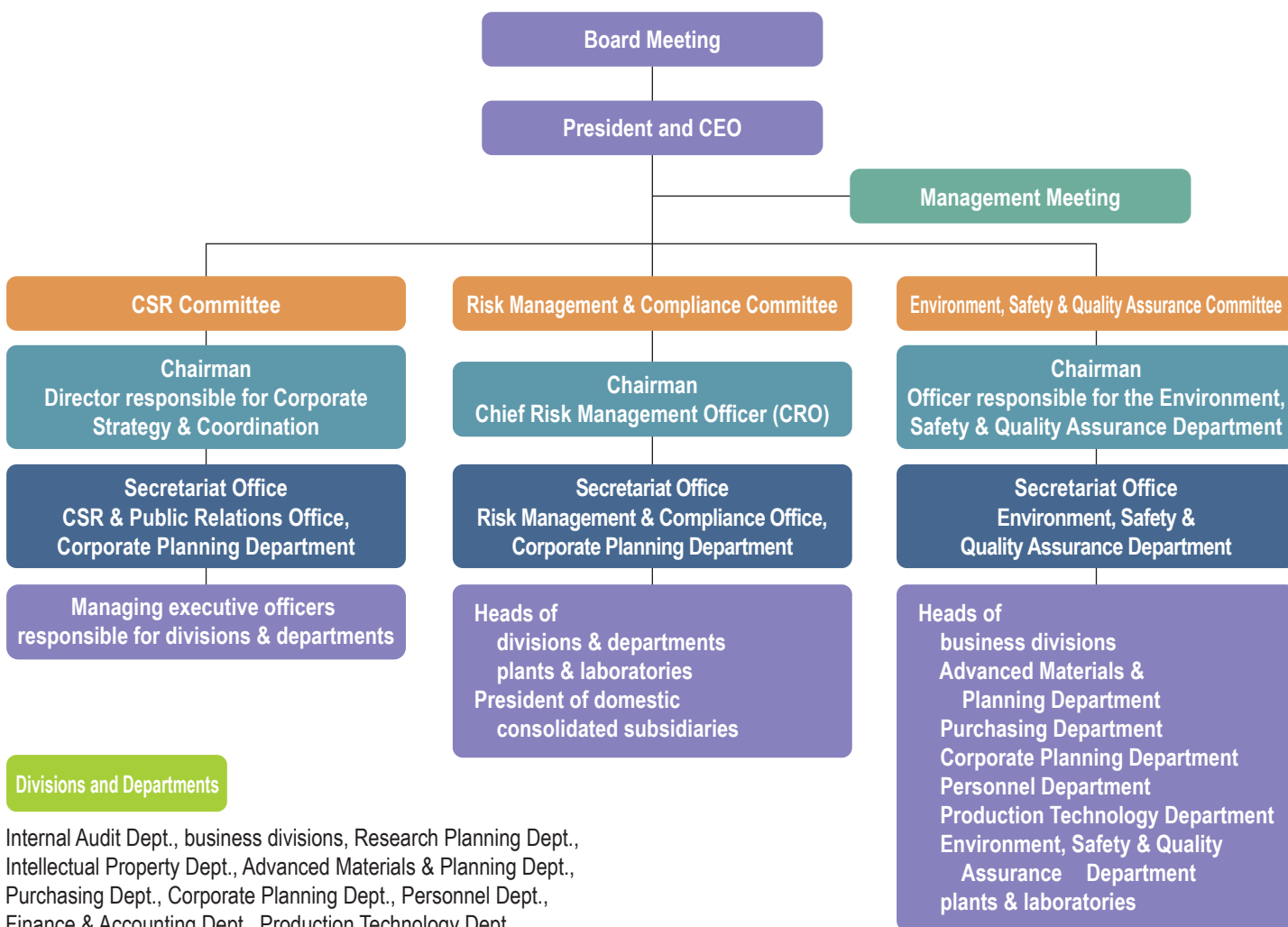
- (1) Enhancing the involvement of outside directors in discussions for developing management plans
- (2) Having outside directors and auditors participate in discussions on the progress of management strategies and plans
- (3) Further improving information materials used in the board meetings
- (4) Sharing discussions at management meetings with outside directors and auditors
- (5) Composition of the Board of Directors that considers balance and diversity
- (6) Setting up a voluntary committee that explains and discusses successor plans including executive managers

# Promotion of CSR

Our group considers that the corporate philosophy “We contribute to society in harmony with the environment, based on our excellent technologies, products and services.” is the basis of our business activities. We have established CSR & Public Relations Office under Corporate Planning Department to enhance our CSR activity with the mission “to draw up CSR strategies in response to social trends, to raise awareness of CSR internally, and to send relevant information”. CSR & Public Relations Office serves secretariat of CSR Committee to tackle global social issues more strategically. This committee which is composed of managing executive officers responsible for divisions and departments, meets biannually to discuss CSR policy, materiality, mid- and long-term plans and annual plans related to CSR, evaluation of the results of activities, and issues that need to be improved and examined based on the evaluation. The results of the deliberations are approved by the management meeting and submitted to the board meeting.

In addition, we have participated in United Nations Global Compact (UNGC) in April 2018. We support 10 principles advocated by UNGC in four fields in human rights, labor, the environment and anti-corruption and will continue to make efforts to realize them, thereby contributing to the sustainable development of society.

## CSR Promotion Structure



## Compliance

Regarding compliance with legislation and social norms to be a prerequisite for our continued survival and development as a company, we have formulated compliance rules and compliance basic policy, and established the Risk Management & Compliance Committee and the Consultation Hotline (whistleblowing system).

In addition, the Risk Management & Compliance Office under the Corporate Planning Department has been established as a specialized organization to promote continuous improvement of the entire compliance activities of Nissan Chemical Group. This office provides education and guidance on compliance, receives reports from the heads of each division / department, plant / laboratory, and group company, and conducts regular audits of the status of compliance. The office makes recommendations for improvement as necessary.

We have formulated the Compliance Manual, which sets forth compliance assessment for group employees, and are working to earn a solid social evaluation as a good corporate citizen by matter even more day-to-day activities than before.

### Compliance Basic Policy

1. We consider compliance to be an important management issue and ensure thorough compliance in every aspect of its business activities, thereby establishing corporate ethics.
2. All officers and employees of Nissan Chemical Group shall be sufficiently aware of compliance and prevent the occurrence of a compliance violation.
3. In the event that a compliance violation has occurred or is likely to occur, we take a prompt and appropriate response.

### Compliance Manual Rules

We have established compliance rules from various viewpoints, including anti-corruption.

#### As a corporate citizen

- Comply with the laws/regulations of the industry
- Restrict contributions and political donations
- Terminate any relationships with antisocial forces
- Comply with antitrust laws
- Conduct fair transactions with suppliers and comply with the "Act against Delay in Payment of Subcontract Proceeds, Etc. to Subcontractors"
- Prevent unfair competition
- Comply with laws and regulations related to security export control
- Comply with laws and regulations related to import/export
- Prohibit excessive entertainment and gifts
- Prohibit bribery of foreign officials, etc.
- Implement appropriate marketing and advertising

#### As a public corporation

- Disclose management information
- Conduct appropriate accounting processing

#### As a manufacturer

- Ensure the safety of products
- Protect the environment
- Implement security and disaster prevention measures

#### As a stakeholder of the Company

- Prohibit conflicts of interest
- Use corporate assets appropriately
- Prohibit insider trading

#### As a member of the workplace

- Comply with work regulations
- Respect human rights; prohibit discrimination
- Prohibit sexual harassment
- Protect privacy
- Ensure the health and safety of the workplace
- Prohibit political and religious activities

#### As a person who handles work-related information

- Manage confidential corporate information appropriately
- Use information systems appropriately
- Manage personal information appropriately
- Protect intellectual property rights

### Restrictions on acts of endowment and political donations

- (1) Political donations and donations to various organizations must be made by observing the relevant laws and regulations such as the "Public Offices Election Act" and the "Political Funds Control Act", and by following the proper methods.
- (2) Prior approval must be obtained by following internal rules before donating money or making any other donation.
- (3) Sound and transparent relationships with politicians and the government must be created by refraining strictly from actions that may lead to the misunderstanding that we have cozy relationships with them, not to mention bribery, payoffs and illegal political donations.

### Prohibition of excessive entertainment and gift-giving

- (1) Entertainment and gift-giving for public officials or quasi-public officials that contravene the regulations under the "National Public Service Ethics Act", etc. are prohibited.
- (2) Entertainment and gifts to business partners must be given within the bounds of common sense of the general public.
- (3) Response to entertainment or a gift offered by our client or business partner, etc. must not be made before consulting our superiors when the entertainment or the gift is suspected to be beyond the bounds of common sense of the general public.

### Prohibition of bribery of foreign public officials

It is prohibited to provide foreign public officials, etc. with money or any other favors to gain illegal profits in the course of business or in return for favors provided by them in business, either directly or via a third party such as a consultant. It is also prohibited to promise or offer to provide such favors.

## Measures for Promoting Compliance (FY2017)

Information Management	Formulation of guideline for confidential information In-house training for revision of the "Act on the Protection of Personal Information"
Insider Trading Regulations	In-house training for new employees Dissemination by in-house newsletter
Subcontracting Regulation	In-house training for the "Act against Delay in Payment of Subcontract Proceeds, Etc. to Subcontractors" Internal audit
Consultation Hotline	Improvement of contact (addition of outside corporate auditors) Introduction of in-house leniency system
Anti-bribery	In-house training Dissemination by in-house newsletter Formulation of the "Anti-Corruption and Bribery Policy" at Nissan Chemical Product (Shanghai) Co., Ltd.
Security Export Control	In-house training for the "Foreign Exchange Law" Internal audit
Others	Consolidated subsidiaries Compliance Officers Meeting Training for group companies Training for newly-appointed board members Training for board members etc.

### Consultation Hotline

We have Consultation Hotline to prevent compliance violation or resolve the problem early on. When an employee discovers a compliance violation or potential compliance violation, he or she shall address the problem in normal operation in principle, through measures that include reporting the matter to their superior. However, if he or she thinks it is difficult to address the problem promptly and effectively, they can use the Consultation Hotline.

The contact point for reporting shall be the Risk Management & Compliance Office, outside attorneys, or outside corporate auditors, and the means for reporting may be selected by e-mail, mail, or telephone. Upon receipt of a report, the contents are reported to the corporate auditors. The Board of Directors periodically receives reports from the Risk Management & Compliance Office on the status of the operation of the internal reporting system and supervises it.

Although it is possible to report anonymously, even if the name of the informant is indicated, we take care not to disadvantage the informant due to the use of the system.

In FY2017, there were no cases of whistleblowing. We inform employees of the system via our in-house newsletter.

	FY2013	FY2014	FY2015	FY2016	FY2017
Consultation Hotline Reports (Number)	2	1	1	0	0

# Risk Management

## Risk Management Basic Policy

We are promoting risk management in accordance with the following action guidelines, with the aim of recognizing the various risks involved in the Nissan Chemical Group, preventing the occurrence of loss risk, minimizing the impact of their occurrence, and contributing to the achievement of our management strategic goals.

1. We place top priority on the safety of the lives of officers and employees of the Nissan Chemical Group.
2. We consider risk management to be an important management issue, and engage in the activities from a company-wide perspective.
3. All officers and employees of the Group shall be sufficiently aware of risk management, strive to improve their abilities, and endeavor to prevent the occurrence of loss risk.
4. We promptly share the information on risk throughout the company.
5. We make efforts to respond promptly and accurately to the occurrence of loss risk and to minimize losses.

## Goals of risk management

- |   |   |   |
|---|---|---|
| 1. Ensuring the Safety of Human Resources | 3. Sound preservation of assets             | 5. Maximizing business opportunities and opportunities to make achievements, and avoiding the loss of these opportunities |
| 2. Surviving as a company                 | 4. Securing the credibility of stakeholders | 6. Ensuring compliance and pursuing efficiency, accuracy, and effectiveness in the execution of business operations       |

## Risk Management System

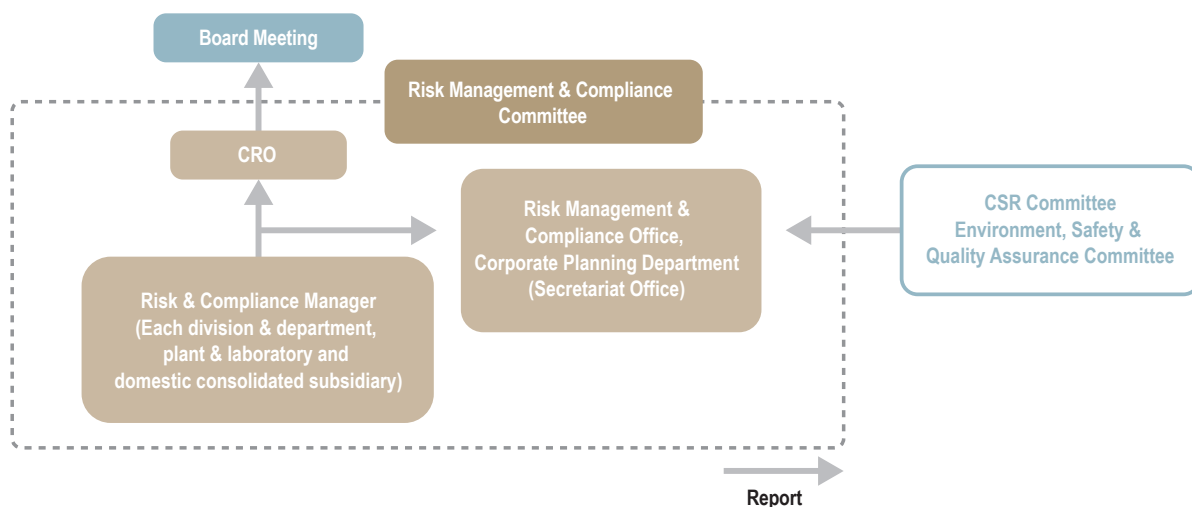
The Risk Management & Compliance Office under the Corporate Planning Department has been established as a specialized organization to promote continuous improvement in all of our risk management activities.

In addition, the Risk Management & Compliance Committee, which is held twice a year, has been established as an organization to enhance the effectiveness of risk management, and to maintain and promote compliance.

The committee is chaired by the Chief Risk Management Officer (CRO), who is appointed at the board meeting, and is composed of the risk & compliance managers of each division / department, plant / laboratory, and domestic consolidated subsidiary appointed by the CRO.

The risk & compliance managers periodically conduct risk identification and assessment, formulate countermeasure plans, conduct self-assessment for status of implementation of the countermeasure plan and subject, formulate improvement plan, and systematically perform education and training at each division / department, plant / laboratory and domestic consolidated subsidiary.

The important matters related to risk management and countermeasure plans, etc. are decided at the board meeting after discussion by the committee.

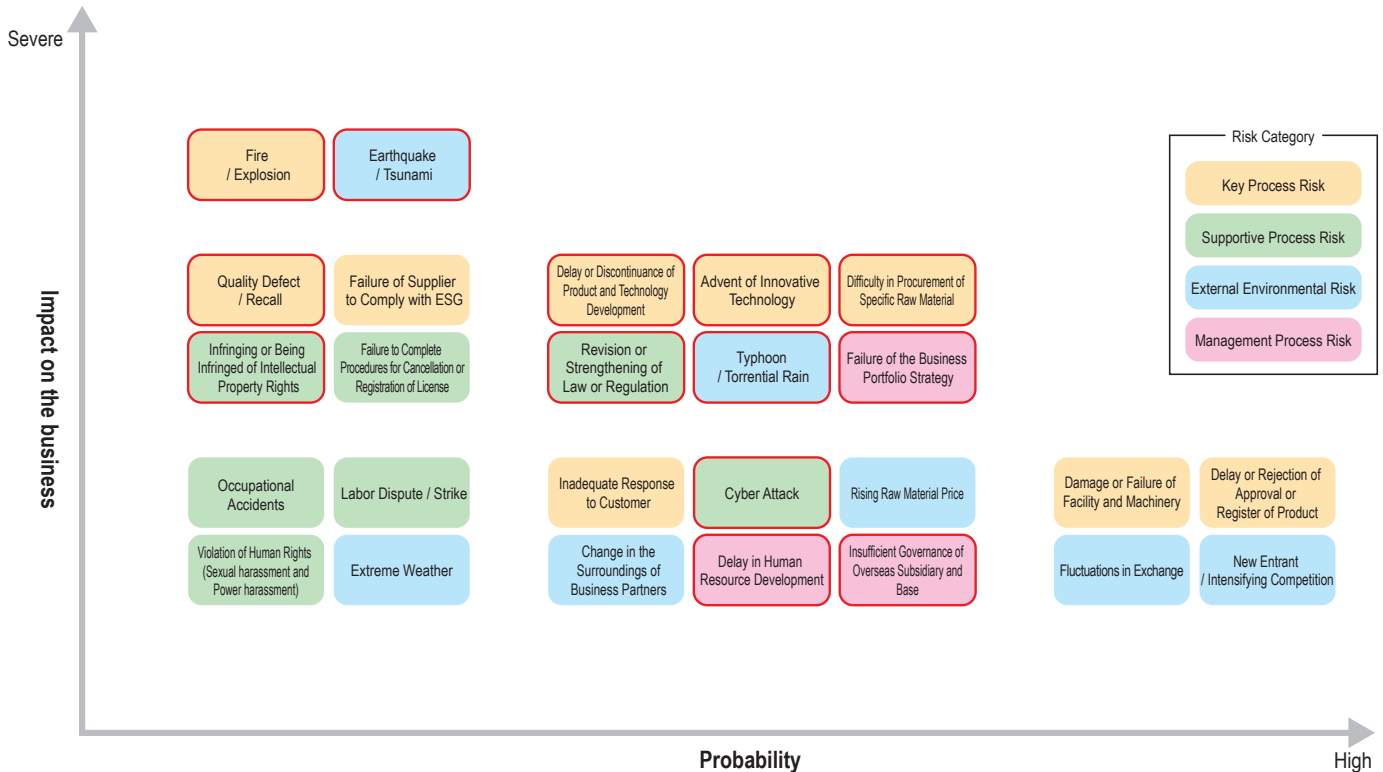




## Identified Group Major Risks

We clarified risks taking into account the business characteristics of each division and the surrounding businesses, including global political, economic and social conditions. Subsequently, risk assessment was conducted from the viewpoint of probability and impact on the business. By following the assessment, risk map was created and group major risks were identified. The contents of major risks were deliberated by the Risk Management & Compliance committee and agreed at the board meeting.

### Risk Map (Excerpt)



Group Major Risk	Summary of Risk
Delay or Discontinuance of Product and Technology Development	Risk of the failure of payback of invested capital to R&D due to being unable to launch the product under development
Advent of Innovative Technology	Risk of the losing competitive power due to advent of innovative technology with low cost
Failure of the Business Portfolio Strategy	Risk of decline in business performance due to the failure of the business portfolio strategy
Difficulty in Procurement of Specific Raw Material	Risk of being unable to supply the product to customer due to the discontinuance of specific raw material
Revision or Strengthening of Law or Regulation	Risk of unwilling discontinuance of sales of product, or unwilling change in business or capital investment plan due to revision / strengthening of law or regulation
Typhoon / Torrential Rain	Risk of increasing expenses to plant restoration and decreasing production volume due to direct onslaught on main plant by large-scale typhoon
Earthquake / Tsunami	Risk of suspension of business activities and the death or injury of many employees due to massive earthquake occurring at the location of business site
Fire / Explosion	Risk of suspension of business activities and the death or injury of many employees, and being sued by neighboring resident for the damage by fire / explosion at plant
Quality Defect / Recall	Risk of reimbursement for large expenses by customer and discontinuance of transactions due to PL accident which occurs with product containing material provided by the Company
Infringing or Being Infringed of Intellectual Property Rights	Risk of being subjected to a large amount of damages and product injunction claims from other company due to infringement on other company's patent
Cyber Attack	Risk of shut down of operations for a long period of time, and losing credibility of customer and society because of leak of customer's or the Company's confidential information by cyber attack
Delay in Human Resource Development	Risk of personnel shortage which occurs in each division due to delay in the human resource development who will be responsible for the growth of the Company
Insufficient Governance of Overseas Subsidiary and Base	Risk of losing credibility due to discovery of impropriety management at overseas subsidiary and base caused by inadequate control

## RC Management

Responsible Care activities aim to secure environment, health and safety (EHS) performance on voluntary basis throughout the entire process, from the development of chemical substances to manufacture, distribution, use, final consumption and disposal / recycling. These activities also serve as a form of communication with society through the announcement of their results. Chemical companies in more than 60 countries and regions are working on RC activities. In Japan, the Japan Responsible Care Council was established by the Japan Chemical Industry Association in 1995, and we are one of the original members of the association.

We have also signed the Responsible Care Global Charter, which was revised in 2014. We are enhancing our efforts in RC activities.



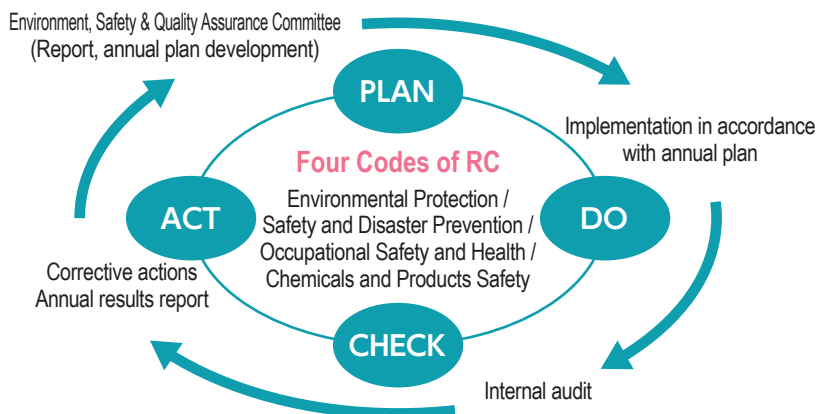
## Nissan Chemical RC Management System

To achieve our RC mid-term plan, we have established RC management system based on ISO14001\*, and we carry out targets management and continuous improvements based on PDCA (Plan, Do, Check, Act).

We have established the Environment, Safety & Quality Assurance Committee, which is chaired by the officer responsible for the Environment, Safety & Quality Assurance Department, as the organization in charge of promoting these activities. The committee holds annual meeting, at which its members discuss the results of activities at each laboratory / plant, review all the activities of the Company, and set the RC targets for the next fiscal year.

The results of the discussion are reported to management meeting. The targets of next fiscal year are resolved at the board meeting after deliberated and approved by the management meeting.

\* International standard for environmental management system. All of our plants have acquired ISO 14001 third party certification.



▲ Environment, Safety & Quality Assurance Committee: Officer responsible for the Environment, Safety & Quality Assurance Department (Chairman), the head of Corporate Planning Department, Production Technology Department, Personnel Department, Purchasing Department, business divisions, Advanced Materials & Planning Department, Environment, Safety & Quality Assurance Department, all plants and laboratories. Meeting is held annually.

## RC Basic Policy

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We have set priority matters related to EHS in all stages of our business activities as our RC Basic Policy. We have fully shared this basic policy with all group companies.

We revised the RC Basic Policy in April 2018, in accordance with the “Principles of the Japan Chemical Industry Association regarding the Environment, Health and Safety” established on December 16, 2016.

### RC Basic Policy

- (1) Safeguard the environment, health and safety in domestic and overseas through strong leadership by management.
- (2) Strive to continually improve environmental, health and safety performance and the security of facilities, processes and technologies throughout the entire chemical lifecycle of our products from development to disposal, and disclose the results of such efforts to the society.
- (3) Further reduce consumption of resources and energy and strive to reduce, reuse and recycle waste.
- (4) Protect the environment and people’s health and safety by promoting continual improvement in chemical product safety and stewardship throughout the supply chain.
- (5) Strengthen chemicals management systems by participating in the activities related to development and implementation of lifecycle-oriented, science-based, and risk-based sound chemical management legislation and best practice.
- (6) Influence business partners to promote the safe management of chemicals within their own operations.
- (7) Endeavor to engage in dialogue with local authorities and communities by heeding their concerns regarding the effects of our products and business activities on the environment, health and safety, and by providing them with necessary information to help them understand properly.
- (8) Further expand dialogue with our stakeholders in order to better meet their expectations regarding our efforts with respect to the environment, health and safety.
- (9) Contribute to the sustainable development of society by developing and providing innovative technologies and other solutions.

## RC Audits

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RC audits are activities for checking RC activities at each plant, laboratory and affiliate. They are carried out by Environment, Safety & Quality Assurance Department in accordance with the RC audit guidelines. In these audits, the auditors check whether RC activities, as well as internal audits and patrols, are carried out appropriately and the PDCA cycle is implemented without fail, and compliance about EHS at each location. Environment, Safety & Quality Assurance Department clarifies visible or potential problems related to EHS and promotes improvements in response after clarifying the problems, if any. In FY2017, total 43 audits were conducted.

## Promotion of the RC Mid-Term Plan (FY2016-2021)

Responsible Care Code	Mid-term plan (FY2016-2021)	FY2017 plan	
Environmental protection and countermeasures to address climate change	<ul style="list-style-type: none"> <li>Reducing greenhouse gas (GHG) emissions and improving the GHG emission rate*<sup>1</sup></li> </ul> <p>GHG emissions: Reducing the total amount during the period of the mid-term plan (FY2016 to 2021) by 100,000 tons compared to the period of the previous mid-term plan (FY2010 to 2015) as CO<sub>2</sub> equivalent</p> <p>GHG emission rate: Improving by 20% from FY2011 level by FY2021</p> <p>*1 Emissions / sales</p>	<ul style="list-style-type: none"> <li>Further reducing GHG emissions by conversion of fuel for melamine heating furnace and others</li> <li>Reducing N<sub>2</sub>O emissions from nitric acid plants</li> </ul>	
	<ul style="list-style-type: none"> <li>Improving the energy consumption rate*<sup>2</sup></li> </ul> <p>Achieving a 20% improvement from FY2011 level by FY2021</p> <p>*2 Amount of energy consumption / sales</p>	<ul style="list-style-type: none"> <li>Energy saving by improving the equipment capacities and renewal aging facilities</li> </ul>	
	<ul style="list-style-type: none"> <li>Reducing industrial waste</li> </ul>	<ul style="list-style-type: none"> <li>Target setting of the recycling rate</li> </ul>	☆☆☆
	<ul style="list-style-type: none"> <li>Establishing a CSR supply chain management (green procurement) system</li> </ul>	<ul style="list-style-type: none"> <li>Continuously conducting EHS audits</li> <li>Monitoring CSR activities in the supply chain</li> </ul>	
	<ul style="list-style-type: none"> <li>Strengthening measures for biodiversity conservation</li> </ul>	<ul style="list-style-type: none"> <li>Promoting activities for biodiversity based on biodiversity action guidelines</li> </ul>	
	<ul style="list-style-type: none"> <li>Promoting development and sales of environmentally friendly products</li> </ul>	<ul style="list-style-type: none"> <li>Promoting development and study of environmentally friendly products</li> </ul>	
Safety and disaster prevention	<ul style="list-style-type: none"> <li>Creating safety culture and improving the safety capabilities</li> <li>Improving effectiveness of the prior assessment system on manufacturing, construction work and research</li> </ul>	<ul style="list-style-type: none"> <li>Zero accident of fire / explosion / leaking chemicals</li> <li>Reviewing and revising prior assessment guidelines</li> </ul>	☆☆☆
Occupational safety and health	<ul style="list-style-type: none"> <li>Establishing an occupational safety and health management system based on ISO45001</li> <li>Achieving zero accident that requires staff time off from work</li> </ul>	<ul style="list-style-type: none"> <li>Implementing investment in equipments and facilities for safety (350 million yen / three years)</li> <li>Reviewing the status and providing guidance on occupational safety on subcontractors</li> </ul>	☆☆
Chemicals and products safety	<ul style="list-style-type: none"> <li>Promoting risk-based management throughout the lifecycle of chemical substances</li> <li>Contributing to advanced research that examines the impact of chemical substances on human health and the environment</li> </ul>	<ul style="list-style-type: none"> <li>Reviewing the implementation of risk assessment</li> <li>Continuously disclosing safety summaries of chemical substances</li> </ul>	☆☆☆

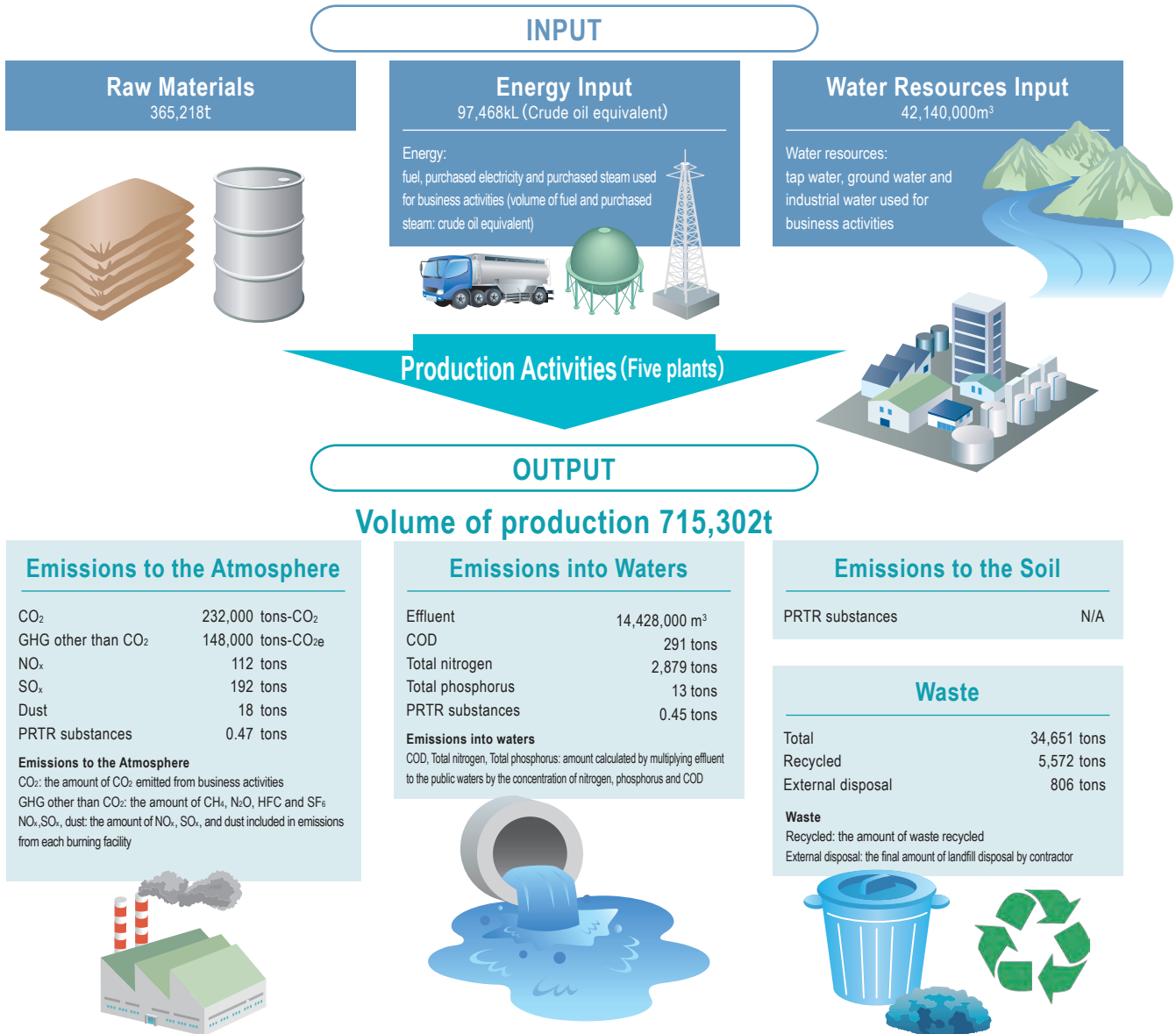
Achievement assessment	Reference	Revision of the mid-term plan ( <u>underline</u> means revision)	FY2018 plan
<ul style="list-style-type: none"> <li>N<sub>2</sub>O emissions reduced by conversion of fuel for melamine heating furnace and by downsizing nitric acid plants.</li> <li>GHG emissions: Reducing by 53,000 tons from FY2016 as CO<sub>2</sub> equivalent (by 15% from FY2011 level)</li> <li>GHG emission rate : Improving by 36% from FY2011 level</li> </ul>	P55	<ul style="list-style-type: none"> <li>Reducing GHG emissions and further improving the GHG emission rate</li> <li>GHG emissions: <u>Reducing by 20% from FY2011 level by FY2021</u></li> <li>GHG emission rate: <u>Improving by 40% from FY2011 level by FY2021</u></li> </ul>	<ul style="list-style-type: none"> <li>Reducing GHG emissions by conversion of fuel for ammonium auxiliary boiler</li> <li>Suppressing Freon gas emissions by chiller renewal</li> <li>GHG emissions: Reducing by 16% from FY2011 level</li> <li>GHG emission rate: Improving by 37% from FY2011 level</li> </ul>
<ul style="list-style-type: none"> <li>Energy consumption rate was improved by 24% from FY2011 level.</li> </ul>	P56	<ul style="list-style-type: none"> <li>Further reducing the energy consumption rate</li> <li><u>Achieving a 30% of reduction from the FY2011 level by FY2021</u></li> </ul>	<ul style="list-style-type: none"> <li>Further energy saving by improving the equipment capacities and renewal aging facilities</li> <li>Energy consumption rate: Improving by 25% from FY2011 level</li> <li>Relocating head office to a highly energy-saving-efficient building (PAL / ERR Stage 3)</li> </ul>
<ul style="list-style-type: none"> <li>Recycling rate was 97.9%.</li> </ul>	P58	<ul style="list-style-type: none"> <li>Further reducing industrial waste</li> <li><u>Recycling rate: 99.5% or higher by FY2021</u></li> </ul>	<ul style="list-style-type: none"> <li>Recycling rate: 98.5% or higher</li> </ul>
<ul style="list-style-type: none"> <li>EHS audits were conducted in major raw material suppliers.</li> <li>CSR assessments were conducted in major raw material suppliers.</li> </ul>	P67	<ul style="list-style-type: none"> <li>Establishing a CSR supply chain management (green procurement) system</li> </ul>	<ul style="list-style-type: none"> <li>Expanding the coverage of EHS audits</li> <li>Expanding the coverage of CSR assessment in the supply chain</li> </ul>
<ul style="list-style-type: none"> <li>Management of Bio-Park</li> <li>Support for a NPO and dialogue with them</li> <li>Participation in "Fujimae-Higata Clean-up Activities"</li> <li>Continuous support for the conservation of Pinus pentaphylla</li> </ul>	P59	<ul style="list-style-type: none"> <li>Strengthening measures for biodiversity conservation</li> </ul>	<ul style="list-style-type: none"> <li>Promoting activities for biodiversity based on biodiversity action guidelines</li> </ul>
<ul style="list-style-type: none"> <li>Environmentally friendly product has been launched. (Venus® Oilclean)</li> </ul>	P25	<ul style="list-style-type: none"> <li>Promoting development and sales of environmentally friendly products</li> </ul>	<ul style="list-style-type: none"> <li>Promoting development and sales of environmentally friendly products</li> </ul>
<ul style="list-style-type: none"> <li>There was no accident of fire / explosion / leaking chemicals.</li> <li>Prior assessment guideline was reviewed.</li> <li>Questionnaire about safety culture was revised.</li> </ul>	P61	<ul style="list-style-type: none"> <li><u>Zero accident of fire / explosion / leaking chemicals</u></li> <li>Creating safety culture and improving the safety capabilities</li> <li>Improving effectiveness of the prior assessment system on manufacturing, construction work and research</li> </ul>	<ul style="list-style-type: none"> <li>Zero accident of fire / explosion / leaking chemicals</li> <li>Revising prior assessment guideline</li> <li>Implementing the revised questionnaire about safety culture and analysis</li> </ul>
<ul style="list-style-type: none"> <li>There was one case of an accident requiring staff time off from work. There were two cases of accidents involving employees of subcontractors including temporary staff.</li> <li>Status of occupational safety and health was confirmed and guidances were provided to subcontractors.</li> </ul>	P62	<ul style="list-style-type: none"> <li><u>Revising the occupational safety and health management system</u></li> <li>Achieving zero accident that requires staff time off from work</li> </ul>	<ul style="list-style-type: none"> <li>Implementing the investment in equipments and facilities for safety (350 million yen / three years: final year)</li> <li>Achieving zero accident that requires staff time off from work</li> </ul>
<ul style="list-style-type: none"> <li>Risk assessment was reviewed by prior assessment.</li> <li>Safety summary of AdBlue® was disclosed.</li> <li>Study of Whole Effluent Toxicity (WET) was launched.</li> </ul>	P63	<ul style="list-style-type: none"> <li>Promoting risk-based management throughout the lifecycle of chemical substances</li> <li>Contributing to advanced research that examines the impact of chemical substances on human health and the environment</li> </ul>	<ul style="list-style-type: none"> <li>Continuously disclosing safety summaries of chemical substances</li> <li>Continuously conducting the risk assessment by prior assessment system</li> <li>Studying WET</li> </ul>

# Environment Safety and Climate Change Strategy

## Environmental Impact from Business Activities

The figure below shows the inputs of raw materials, energy and water for production and emissions to the atmosphere, waters, soil and waste. This is the summary of environmental impact yielded by the Company.

### FY2017 Environmental Impact Results



## Major Results in FY2017 Concerning Reduction of Environmental Impact



Energy consumption rate  
(compared to FY2011)



GHG emissions  
(compared to FY2016)



Sulfur oxide (SO<sub>x</sub>) emissions  
(compared to FY2016)

## Environmental and Safety Accounting

We have made active investment in equipments and facilities such as conversion of the fuel from heavy oil to natural gas for melamine heating furnaces at Toyama plant to save energy and reduce GHG emissions. We also renovate aging facilities and implement constructions for occupational safety and work environment improvement measures in a well-planned manner to ensure safety and disaster prevention and maintain safe operation.

### Environmental Accounting

Our investment plans in equipments and facilities were categorized according to Environmental Accounting Guidelines 2005 published by the Ministry of the Environment, and the amount of investment and expenses were calculated.

Category		FY2017		Effect	Content
		Investment (million yen)	Expenses (million yen)		
Business Area	Pollution Prevention	226	86	Compliance	Waste water measures, leakage prevention, and improvement of pollution control equipment
	Global Environmental Conservation	560	626	Economic benefit : 398 million yen Energy consumption rate : Improving by 24% from FY2011 level GHG emissions : Reducing by 53,000 tons-CO <sub>2</sub> e from FY2016 (Reducing by 15% from FY2011 level), Reducing SO <sub>x</sub> (by 50% from FY2016 level)	Conversion of fuel and feedstock for ammonia, and fuel for melamine heating furnaces Downsizing nitric acid plants
	Resource Circulation	20	358	Reducing final disposal volume of waste	Costs for the transportation and disposal of industrial waste
Upstream / Downstream		0	1	Supply chain management	EHS audit travel expenses for suppliers
Administration		0	228	ISO14001: Acquired certification in 2015 version	ISO activities expenses—certification, training, personnel and business travel expenses
R&D		54	559	Promotion of R&D related to environment and energy	R&D expenses related to environment and energy
Social Activity		0	21	Information disclosure and contribution to local communities	Publication of annual report and maintain of biotope
Environmental Remediation		0	1	Compliance	Expenses on countermeasures against soil contamination
Total		859	1,880		

### Safety Accounting

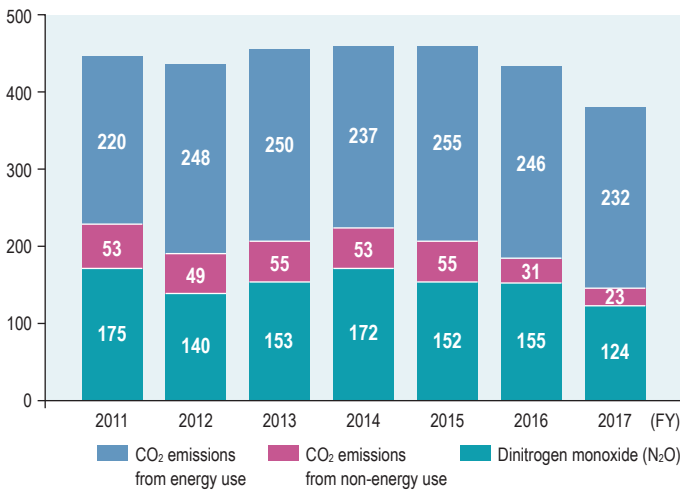
Our investment plans in equipments and facilities related to safety were categorized into “Safety and Disaster Prevention”, “Occupational Safety”, “Administration”, and “Social Activity” and the amount of investment and expenses were calculated.

Category	FY2017		Effect	Content
	Investment (million yen)	Expenses (million yen)		
Safety and Disaster Prevention	1,723	748	Zero accident of fire / explosion / leaking chemicals, and prevention of trouble at manufacturing	Leakage prevention, facility deterioration measures, and maintenance
Occupational Safety	235	29	Prevention of occupational accident	Improvement of unsafe areas
Administration	0	226	Prevention of occupational accident	Personnel and business travel expenses
Social Activity	0	14	Information disclosure	Publication of annual report
Total	1,958	1,017		

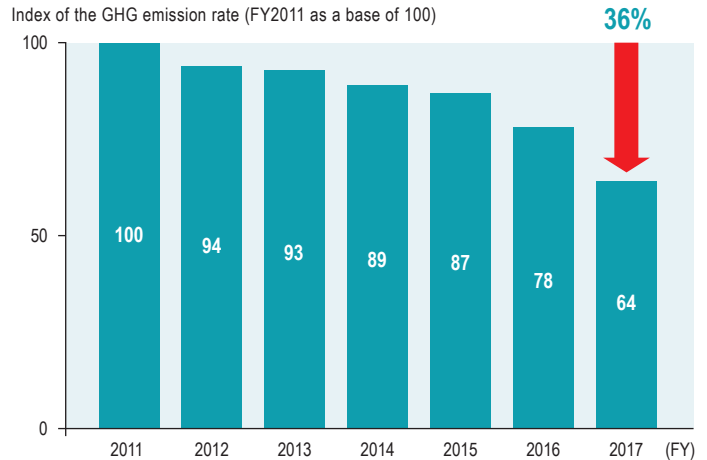
## Reduction of GHG Emissions (scope 1, 2)

In accordance with the “Act on Promotion of Global Warming Countermeasures”, we collect data on the emissions of carbon dioxide (CO<sub>2</sub>) and other GHG from all of our business establishments, including our plants, laboratories, and head office and submit this data to the national government. In FY2017, the conversion of the fuel of melamine heating furnace from heavy oil to natural gas, which generates less GHG, helped to reduce GHG emissions from energy use and non-energy use. The volume of reduction of emissions was 53,000 tons-CO<sub>2</sub>e compared to FY2016 levels. By reducing emissions by 15% from FY2011 level, the energy consumption rate calculated as a ratio of emissions and sales (emissions / sales) significantly improved by 64% compared to that of FY2011.

GHG emissions (1,000 tons-CO<sub>2</sub>e)



Index of the GHG emission rate (FY2011 as a base of 100)

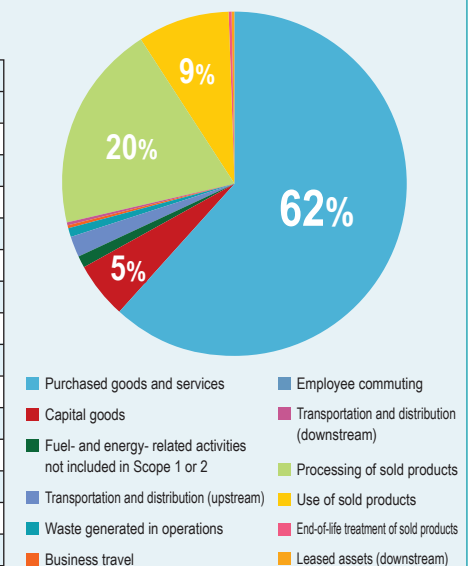


## Reduction of GHG Emissions (Scope 3)

To discover our GHG emissions throughout the supply chain, from the purchase of raw materials to use and disposal by customers, we calculated our indirect GHG emissions via the supply chain (Scope 3) in addition to our direct GHG emissions (Scope 1) and indirect emissions derived from energy (Scope 2). We also participated in the Ministry of the Environment’s SC (Supply Chain) emissions calculation support project, and the results of these initiatives are available on the Green Value Chain Platform website at [https://www.env.go.jp/earth/ondanka/supply\\_chain/gvc/en/](https://www.env.go.jp/earth/ondanka/supply_chain/gvc/en/). Scope 3 was calculated and found to be accounted for 62% of purchased products and services.

### Scope 3

No.	Item	Calculated value (tCO <sub>2</sub> e)
1	Purchased goods and services	472,635
2	Capital goods	39,028
3	Fuel- and energy- related activities not included in Scope 1 or 2	8,610
4	Transportation and distribution (upstream)	14,921
5	Waste generated in operations	6,458
6	Business travel	1,606
7	Employee commuting	392
8	Leased assets (upstream)	Included in Scope 1 or 2
9	Transportation and distribution (downstream)	1,579
10	Processing of sold products	149,410
11	Use of sold products	65,832
12	End-of-life treatment of sold products	2,617
13	Leased assets (downstream)	183
14	Franchises	Not applicable
15	Investments	Not applicable





## Amount of Energy Consumption and Energy Consumption Rate

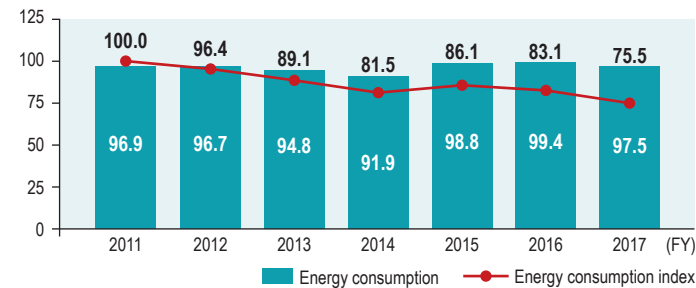
### Production, research and office

In accordance with the "Act on the Rational Use of Energy", we collect data on the amount of energy consumed at all of our business establishments and submit this data to the national government, along with data on our energy consumption rate. Our energy consumption (crude oil equivalent) in FY 2017 reduced compared to that of previous fiscal year. We have a product matrix that covers a wide range of products, from commodity chemicals to agrochemicals, pharmaceuticals and functional products for electronic materials. This is why we calculate it not based on simple quantity of production but based on sales. This consumption rate improved from the previous fiscal year by 7.6%. This is attributed mainly to conversion of the fuel from heavy oil and naphtha to natural gas. In FY2018, our head office was relocated to a highly energy-saving-efficient building (PAL / ERR Stage 3).

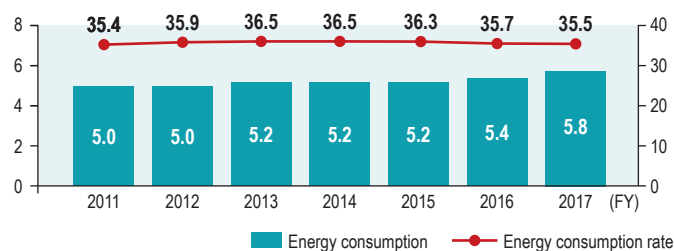
### Logistics

As a cargo owner, we work together with Nissan Butsuryu Co., Ltd., a group company which handles our logistics operations, to promote the rational use of energy for transportation. In FY2017, the amount of energy consumption in crude oil equivalent increased from the previous fiscal year. However, the energy consumption rate was improved. We will continue striving to improve our energy consumption rate through measures such as promoting modal shifts, replacing vehicles with energy-saving and practicing eco-driving.

Energy consumption (crude oil equivalent 1,000kL) and energy consumption index (FY2011 as a base of 100) in production, research and office



Energy consumption (left axis: crude oil equivalent 1,000kL) and energy consumption rate (right axis: kL / one million ton kilo) in logistics



## TOPICS

### Efforts for Reducing GHG Emissions

At the Toyama Plant, fuel and feedstock for ammonia were converted from naphtha and heavy oil to natural gas in August 2016 and fuel for melamine heating furnace in August 2017. This contributed to a major achievement in reducing emissions of not only carbon dioxide but also sulfur oxides (SO<sub>x</sub>). We also contributed to reduction of GHG emissions by making effective use of carbon dioxide, which is a by-product of the manufacturing process.

On the other hand, in July 2017, production capacity of nitric acid was optimized to reduce nitrous oxide (N<sub>2</sub>O) emissions generated from reactors by approximately 30,000 tons as CO<sub>2</sub> equivalent per annual. This year, we plan to switch fuel used in heating furnaces using cyanuric acid as a heating medium. We will continue to expand the use of natural gas for other boiler fuels and consider ways to reduce the amount of GHG emissions in order to reduce our environmental impact.



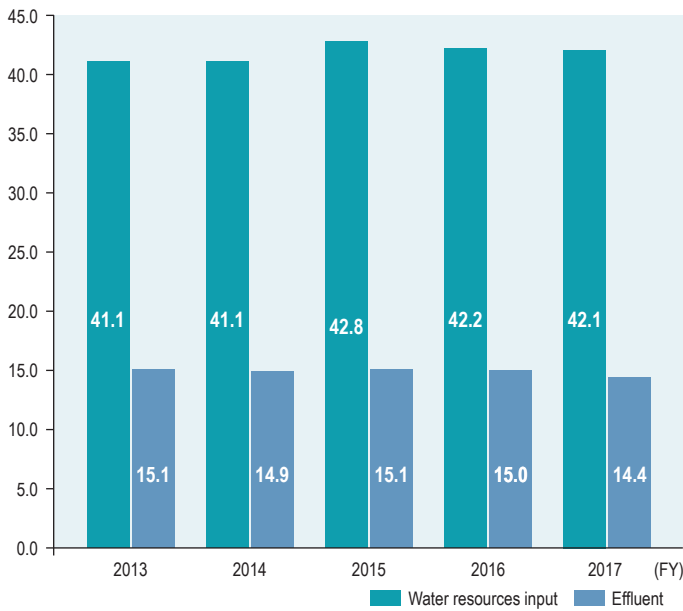
▲ Melamine heating furnace

## Efficient Use of Water Resources

At each plant, we carry out exhaustive water-saving activities by observing environmental laws and regulations and cooperating with local organizations. These activities ensure that our operations do not place an impact on natural water circulation. We also clean waste water before returning it to nature to prevent it from negative impact on the environment.

At the Toyama Plant, we have been promoting the rational use of groundwater as a member of the groundwater use council in the Toyama area, a local council that works to protect the local natural environment and promote the sound development of local communities. At the Onoda Plant, we have been taking measures to maintain the quality of waste water discharged from the plant in line with the "Act on Special Measures concerning Conservation of the Environment of the Seto Inland Sea".

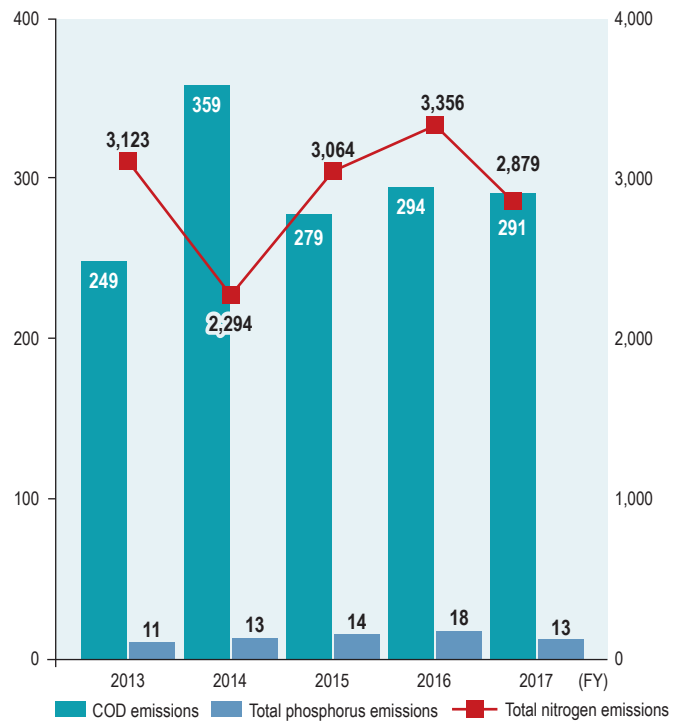
Water input / Effluent (Million m<sup>3</sup>)



## Control of Waste Water

Our plants observe the discharge standards stipulated in the "Water Pollution Control Act" and regulatory values based on agreements with local communities. We monitor the chemical oxygen demand (COD), the total nitrogen and total phosphorous concentration in waste water. In FY2017, the emissions of all of them decreased compared to that of previous fiscal year.

COD (left axis) / Total phosphorus (left axis) / Total nitrogen (right axis) emissions (ton)



### TOPICS

#### Use of Renewable Energy

The Toyama Plant mainly produces ammonia-based products and performance materials. It makes the plant consume a large amount of purchased electricity in the manufacturing process. This electricity is supplied by electric power corporations and Toyama Kyodo Jikahatsuden Co., Ltd., which was established through investment by companies in the Toyama Prefecture, including the Company. Toyama Kyodo Jikahatsuden Co., Ltd. uses the abundant water from the Jinzu River System to generate hydroelectric power at the Miza / Kuzuyama Power Station in Takayama City, Gifu Prefecture. At the Toyama Plant, purchased electricity generated at these hydroelectric power station is used at approximately one-third of the entire electricity consumption. We will continue to use environmentally friendly natural energy in the future.



▲ Miza Power Station

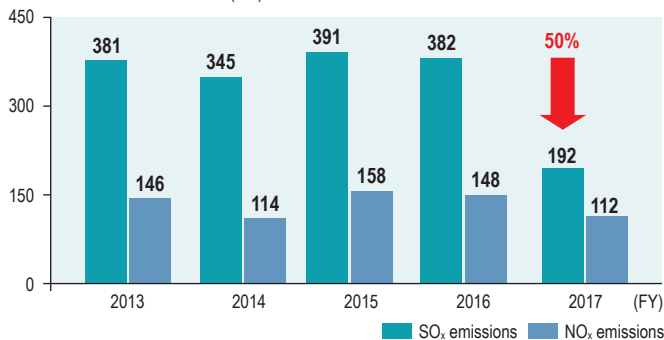


▲ Kuzuyama Power Station

## Control of Exhaust Gas

We control exhaust gas by observing the discharge standards in the "Air Pollution Control Act" and regulatory values based on agreements with local communities. We maintain the proper conditions in our desulfurization facilities and denitrification facilities in an effort to control the emissions of air pollutants such as sulfur oxide (SO<sub>x</sub>) and nitrogen oxide (NO<sub>x</sub>). In FY2017, SO<sub>x</sub> emissions were reduced by 50% compared to that of previous fiscal year by boiler fuel conversion to natural gas.

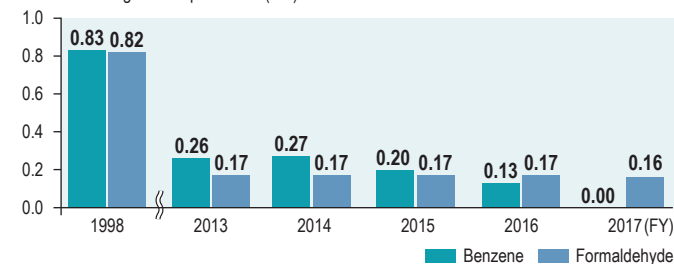
SO<sub>x</sub> emissions / NO<sub>x</sub> emissions (ton)



## Reduction of Emissions of VOCs

We regularly take initiatives to reduce emissions of volatile organic compounds (VOCs), which cause the formation of photochemical oxidants. Among the twelve substances of VOCs which were selected, formulated voluntary management plan, and worked on reduction by chemical industry, three (1,2-dichloroethane, benzene, and formaldehyde) were handled in the Company. As a result of measures such as the introduction of VOC removal equipment, 1,2-dichloroethane has not been discharged to the atmosphere since 2006. In addition, emissions of benzene have been eliminated since FY2017 due to the conversion of naphtha to natural gas as a fuel and feedstock. We are also reducing emissions of formaldehyde through measures such as sealing facilities and combustion treatment of exhaust gases.

Emissions of organic air pollutants (ton)



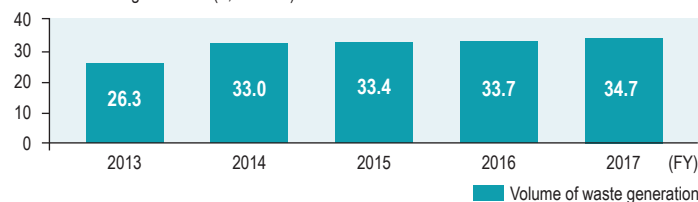
## Reduction of Waste

We thoroughly implement control measures to ensure the proper disposal of waste, while also are striving to reduce industrial waste. We also applied electronic manifests using legal compliance system for waste.

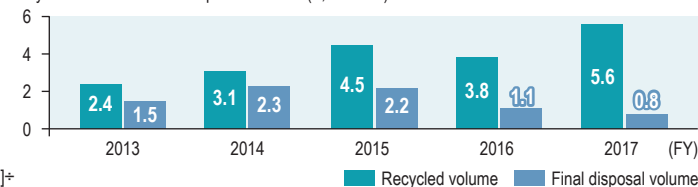
Waste water discharged in the manufacturing process accounts for the majority of our industrial waste. We treat this waste internally by means of combustion. The amount of waste generated began to rise in FY2014 due to an increase in the production volume of organic fine chemicals and flame retardants attributed to their new uses. As for solid waste, we reuse sludge as feedstock for the base course material of roads and cement. In addition, at the Toyama Plant, we promote the recycling of waste plastics and the conversion of such plastics to valuables, and we have changed the method of their intermediate processing to increase the recycling volume. As a result, the final disposal volume reduced compared to that of FY2016. The recycling rate\* was calculated and confirmed to be 97.9% in FY2017. Our goal is to achieve a recycling rate of 99.5% or higher.

\*Recycling rate (%) =  $\frac{[\text{Recycled volume (ton)} + \text{Volume of valuable regenerative (ton)} + \text{Volume of reduction (ton)}]}{[\text{Volume of waste generation (ton)} + \text{Volume of valuable regenerative (ton)}]} \times 100$

Volume of waste generation (1,000 tons)



Recycled volume / Final disposal volume (1,000 tons)



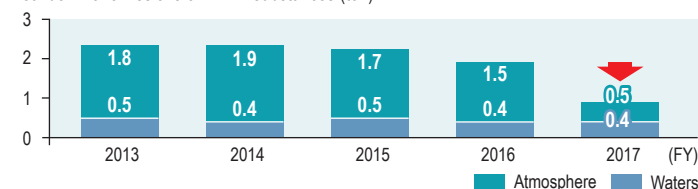
## Reduction of Emissions of PRTR Substances

In FY2017, we emitted 60 chemical substances whose emissions must be registered in accordance with the "Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR law)". The main substances emitted were formaldehyde and n-hexane. Formaldehyde is used as a reaction solvent. n-Hexane has been greatly reduced by switching fuel and feedstock from naphtha to natural gas. As a result, the total emissions have been significantly reduced by half emissions to the atmosphere and waters totaled 0.92 tons, of 0.47 tons and 0.45 tons, respectively. We will continue to take steps to control the emissions. We did not emit these substances into the soil.

Emissions of PRTR substances (ton)

Substance	FY2013	FY2014	FY2015	FY2016	FY2017
Formaldehyde	0.5	0.4	0.5	0.3	0.4
n-Hexane	1.4	1.4	1.3	1.1	0.2
Others	0.4	0.5	0.4	0.4	0.3
Total	2.3	2.3	2.2	1.8	0.9

Breakdown of emissions of PRTR substances (ton)



# Biodiversity Conservation

At Nissan Chemical, we are fully aware of the fact that biodiversity serves as an important foundation for sustainable society in the future. As a member of international society, we intend to promote activities that contribute to biodiversity conservation by sharing roles and responsibilities with all the people and working together with them. For this purpose, we have established the “Nissan Chemical Biodiversity Action Guidelines”. In addition, in October 2015, we participated in the Japan Business and Biodiversity Partnership to promote our initiatives for biodiversity.

## Nissan Chemical Biodiversity Action Guidelines

Our corporate philosophy is “We contribute to society in harmony with the environment, based on our excellent technologies, products, and services.” We at the Nissan Chemical Group engage in business activities that take into account biodiversity and help protect the global environment.

1. We will understand, analyze, and evaluate the impact of our products on biodiversity throughout their lifecycle and strive to reduce the impact. We will work to preserve biodiversity and ensure the sustainable use of biological resources.
2. We will strive to raise each employee’s awareness of biodiversity through responsible care activities.
3. We will continue to carry out social contribution activities that help preserve biodiversity and earn us the high esteem and trust of society.
4. We will disclose the results of these initiatives to deepen the level of communication with society.

## Our Biodiversity Initiatives

### Toyama Plant “Nissan Bio-Park Nishi-Hongo”

The Nissan Bio-Park Nishi-Hongo, operated by the Toyama Plant, has lawn plazas, wetlands, ponds, brooks, and flower fields on approximately 2 hectares of land. We are also involved in the cultivation of fireflies and beetles and the breeding of the endangered Nihon Medaka with the cooperation of local residents, and retired and current employees of the plant. In addition, children from neighboring nursery schools pick up tulips, and dig bulbs of them, and elementary school students learn natural observations.



Nature observation learning by elementary school students

### Nagoya Plant “Fujimae-Higata Clean-up Activities” (Refer to TOPICS)

### Chemical Research Laboratories “Conservation of pine forests on the premises”

Chemical Research Laboratories is located in the northwestern part of Funabashi City, Chiba Prefecture, which was originally rich in nature. In recent years, however, the use of residential land has progressed due to the convenience of transportation. Since its establishment in 1971, Chemical Research Laboratories has been engaged in conservation activities to preserve pine forests, which had spread to the south of the premises.



(USA)



Nissan Chemical America Corporation “Membership Program of Armand Bayou Nature Center”

Head Office / Biological Research Laboratories Support for “Kurohama-numa Shuhen no Shizen wo Taisetsu ni Suru Kai” (Refer to TOPICS)

### Sodegaura Plant “Support for the conservation of Pinus pentaphylla”

Sodegaura Plant has participated in efforts to protect and restore the Pinus pentaphylla, which was selected as the endangered species by Chiba Prefecture. It grew up smoothly, and a new leaf came out.



## TOPICS

### Nagoya Plant “Fujimae-Higata Clean-up Activities”

Since May 2016, the Nagoya Plant has participated in the Fujimae-Higata Clean-up Activities (twice a year in spring and autumn) with cooperation by employees of Nagoya Plant and subcontractors to conserve the tideland registered under the Ramsar Convention.

In 2004, four citizen collectives formed the Fujimae-Higata Clean-up Activities Planning Committee in cooperation with the government and companies to conduct a clean-up activities by river basin citizens and citizen's groups with the objectives of “making Fujimae-Higata free from shame in the Ramsar Convention,” “restoring tidal flats and rivers that children can play with peace of mind,” and “forming a network to think about the waste and water of the entire river basin”.

As part of our initiatives to conserve biodiversity, we will continue to contribute to the conservation of valuable tidal flat, where migratory birds gather as transit sites for long journeys.



## TOPICS

### Head Office / Biological Research Laboratories Support for “Kurohama-numa Shuhen no Shizen wo Taisetsu ni Suru Kai”

In FY2016, we began to support “Kurohama-numa Shuhen no Shizen wo Taisetsu ni Suru Kai (Society for Cherishing the Natural Environment around Kurohamanuma Pond)”, an NPO in Hasuda City, Saitama Prefecture. For many years, this organization has been engaged in activities for conserving the biodiversity of the area around Kurohamanuma Pond, which is designated as the No.11 Land for Conservation by Trust (Trust Hozen 11-gou chi) by the Saitama Greenery Trust Association of Saitama Prefecture. Every year, representatives from the CSR & Public Relations Office, the Environment, Safety & Quality Assurance Department, and the Biological Research Laboratories visit the environmental learning center (Kankyo Gakushu-Kan) in Hasuda City managed by the NPO to exchange opinions on biodiversity conservation. Furthermore, in 2018, in order to deepen understanding of biodiversity conservation, we participated in the Saitama Greenery Trust Association in the vicinity of Kurohamanuma pond, and learned about forest conservation through the lecture titled “Toward the History and Current State of Forests and Nature” sponsored by the President of the Trust Association, Professor Emeritus Takehiko Ota of the University of Tokyo, and experienced bird-watching at nature observation meetings.

We will continue to support the NPO which conducts the community-based activities while facing issues such as dryness of the Kurohamanuma, reduction of native species due to breeding of alien species, aging of the members.



▲ Dialogue on biodiversity conservation activities



▲ Bird-watching session



▲ Rice paddies that prevent the drying of Kurohama-numa Pond

# Safety and Disaster Prevention, Occupational Safety and Health

## Safety and Disaster Prevention

We carry out risk assessment, process risk predictions, and facility risk predictions by prior assessment for manufacture with the aim of ensuring safety, achieving stable operations, and improving our process safety capability. As a result, in FY2017, there was no accident such as explosion / leakage.

Our plants, laboratories and affiliates carry out various drills and training sessions all taking into account the characteristics of the location and region, and are designed to make us ready to respond to emergencies or accidents in a reliable manner.

In addition, we are working to improve issues assessed through questionnaire about safety culture at each location.



▲ Disaster drill

### TOPICS

#### Safety Education at Training Center

We have established a training center within the Toyama Plant to provide guidance on basic facility and work methods to young employees who have worked for the Toyama Plant for less than 10 years. The lecturers are employees of the machinery, electricity, and instrumentation conservation division of the Toyama Plant. While using a model of educational equipment, they teach the importance of safe work methods by actually moving hands. This training, which has been implemented since 1991, has also accepted participants from other plants, and contributes to raising the safety awareness of the entire company.



## Occupational Safety and Health

We make continuous improvements with regard to occupational safety and health as well, by implementing a PDCA cycle in our RC management system. We thereby prevent occupational accidents, promote the good health of staff, and build a comfortable workplace environment in our efforts to improve the level of safety and health at each business location.

At business locations where occupational accidents have occurred, we conduct a thorough investigation into the causes and plan and implement emergency and permanent measures. This information is compiled as an occupational accident report, and the entire Nissan Chemical Group is working to prevent similar accidents by sharing information and promoting horizontal deployment. We are also working to prevent occupational accidents at our subcontractors through safety audits.

In FY2016, we have participated in the *Anzen Project* (safety project) of the Ministry of Health, Labour and Welfare, and began publishing an occupational safety newspaper in an effort to raise awareness of safety activities.

### あんぜんプロジェクト

あんぜんプロジェクトは、労働災害のない日本を目指して、働く方の安全に一生懸命に取り組み、「働く人」、「企業」、「家族」が元気になる職場を創るプロジェクトです。

This is a detailed occupational accident report form. It includes sections for:
 

- 発生場所 (Occurrence location)
- 発生時刻 (Occurrence time)
- 発生状況 (Occurrence details)
- 発生原因 (Cause of occurrence)
- 被害状況 (Victim status)
- 発生原因の調査 (Investigation of cause)
- 再発防止策 (Prevention measures)
- 関係者 (Related parties)
- 備考 (Remarks)

▲ Occupational accident report



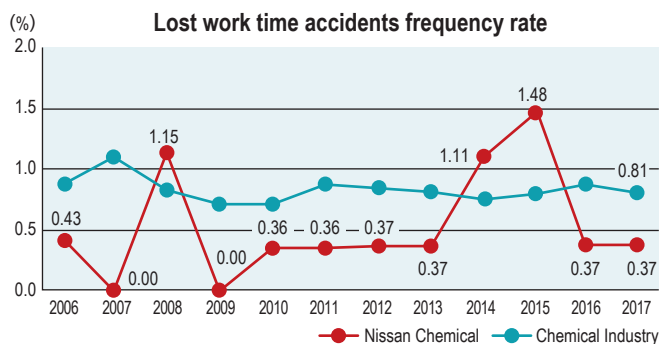
▲ Occupational safety newspaper (occupational safety monthly report, number of days of accident-free continuation)

## Safety Result

In 2017, we have one case of an accident requiring staff time off from work, and nine cases of accidents not requiring staff time off from work. The number of accident requiring staff time off from work is the same as that of previous year, and the number of accident not requiring staff time off from work increased (by 6). These were due to increased bee sting and chemical injuries. We are aiming to achieve zero accident by promoting risk assessment, risk predictions training, HHK\*1, 5S\*2 and appropriate wearing of protective equipment and by raising awareness of safety through the safety meeting and the occupational safety newspapers. In measure, we plan to invest a total of 350 million yen over the three-annual period beginning in FY2016 to the safety of facilities for prevention of fall / overturning.

\*1 HHK stands for Hiyari-Hatto (near miss incident) and Kigahari (alarming). It means the discovery of near-miss incidents that are not linked directly to serious injuries or accidents but could have resulted in such injuries or accidents.

\*2 5S stands for Seiri, Seiton, Seisou, Seiketsu, Shitsuke. These words mean "Sort" "Set" "Shine" "Standardize" "Sustain" respectively.



# Chemicals and Products Safety

## Chemicals Management

To achieve the “2020 goal”<sup>\*1</sup> on which agreement was reached at the “World Summit on Sustainable Development (WSSD)” in 2002, the “Strategic Approach to International Chemicals Management (SAICM)” for promoting risk reduction based on scientific risk assessment, collection and provision of information, and other measures were adopted at the “International Conference on Chemicals Management (ICCM)” in 2006. At Nissan Chemical, we strive to minimize the negative impact of chemical products on people’s health and the environment during their lifecycle in line with the domestic SAICM implementation plan.

<sup>\*1</sup> “Aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment”



## Risk Assessment in Products Lifecycle

We perform a risk assessment (prior assessment) of each step in handling chemical products, such as the research and development, manufacture, sales and revision. The assessment of risks to human health and the environment in the value chain is based on data performed by the Biological Research Laboratories, either on its own or by outsourcing, safety test data obtained from results of searching external databases such as literature, and checking things such as data on physicochemical properties and work environment conditions. Based on the results of risk assessment, we avoid using chemicals of concern and study safe alternatives. These results are reported to top management and made known to all the relevant people in the Company. The results are also made known to people in the value chain by means such as technology transfer documents and safety data sheets (SDSs).

We also participate in Long-Range Research Initiative, an international initiative promoted by Japan Chemical Industry Association (JCIA) that seeks to provide long-term support for research on the impact of chemicals on human health and the environment. The activities we engage in aim to advance research on the assessment of risks to human health and the environment.



## Disclosure of SDS of Products

To ensure that our chemical products are used safely by our customers, we provide SDSs of all products. Customers and users can download the SDSs for all agrochemicals from our website. (<https://www.nissan-agro.net/products/index.php>). Our employees can obtain information about risks and hazards, laws and regulations, transportation, storage and methods of disposal of products from our internal SDS database for safety and compliance.



## Disclosure of Safety Summary of Chemical Substances

For minimizing the risks of chemical substances throughout the entire value chain, we participate in the GPS\*<sup>2</sup> / JIPS\*<sup>3</sup> activities promoted by the International Council of Chemical Association (ICCA) and JCIA. As part of our activities, we conduct risk assessments of our chemical products, conduct appropriate risk-based management, and provide safety information. The Information is compiled in GPS / JIPS Safety Summary and made available to the society.

\*<sup>2</sup> Global Product Strategy

\*<sup>3</sup> Japan Initiative of Product Stewardship



GPS Safety Summary																													
<p>This Product Safety Summary is intended to provide a brief overview of the product and is not intended to provide quantitative information, such as effect on the environment, human health or the process of risk assessment. Additional safety and health information should be obtained from the Safety Data Sheet (SDS) for the chemical substance.</p>																													
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## Consideration for Animal Testing

Assessment made using laboratory animals is essential for the research and development of agrochemicals, pharmaceuticals, medical materials and chemical materials that are beneficial for society. Biological Research Laboratories has established Animal Testing Guideline of Nissan Chemical in accordance with the Three Rs principles of animal welfare (Replacement with alternative methods, Reduction in the use of laboratory animals and Refinement of methods for reducing pain), and laws and regulations such as the "Act on Welfare and Management of Animals". Following this guideline, the institutional Animal Care and Use Committee examines whether to conduct animal testing, both ethically and scientifically, and checks how the tests are performed to ensure that animal testing is conducted appropriately and that proper consideration is given to animal welfare.

Due to these initiatives, the Biological Research Laboratories has obtained third-party certification of its laboratory animal facilities from Japan Health Sciences Foundation.

### TOPICS

#### New Initiative to Wastewater Assessment

Since industrial effluents are directly released to the environment, reference values are set for each hazardous substance and released to the environment after they are cleared. However, this management method does not confirm the impacts on aquatic organisms and does not comprehensively assess wastewater. Currently, water environmental management methods using aquatic organisms are being studied in Japan. WET (Whole Effluent Toxicity) enables to assess the impacts of chemical substances in wastewater comprehensively by raising aquatic organisms in wastewater and clarifying their effect on the biological body. The Biological Research Laboratories has applied the evaluation technology for aquatic organisms cultivated through product safety assessments, and has begun initiatives to introduce WET that incorporates the viewpoint of organisms into plant effluent assessment.



## Commitment to and Communication with Stakeholders



### Customers

We identify customer needs through sales activities, and work to improve our products and services.

### Shareholders and Investors

At the general shareholders' meeting, the president, who acts as the chairman, provides explanations of the business report and business plan. We also hold an IR briefing meeting for institutional investors, analysts, the media, and private investors periodically to explain the overall conditions of our business.

### Employees

Every year, the president visits offices, plants, and laboratories in Japan and overseas to deepen mutual understanding with employees.

### Business Partners

We promote supply chain management and check our business partners' CSR initiatives as necessary.

### Communities and Society

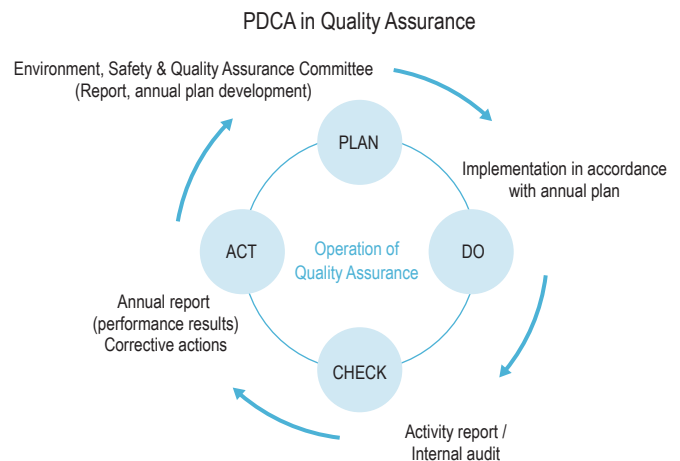
We interact with local communities through measures such as plant tours and visits to local elementary schools to give special classes.

## Relationships with Customers

### Quality Policy and Quality Targets

Our quality policy is "Providing products and services that satisfy customers". Under this policy, we set mid-term quality targets and implement annual schedules along with PDCA cycle in an ongoing effort to improve our management system and operations every year.

Moving forward, we will continue to improve our capability of meeting market needs that are becoming more diverse and complex. We will thereby develop ourselves further as a company that contributes to society.



## Quality Assurance Management System

Our quality assurance management system is based on ISO9001(QMS)\*. Our plants have obtained ISO9001 certification respectively, and maintain and update their certification through the certifying body. They have also completed the transition to the latest version: 2015.

We have established a quality assurance division that is independent of the manufacturing divisions at each plant. Each quality assurance division is responsible for inspecting the quality of each product, and the quality assurance division of the head office conducts quality audits of each plant and affiliate at least once a year. The Environment, Safety & Quality Assurance Committee meets regularly once a year as an organization to promote quality assurance activities on a company-wide basis. The committee reports on the results of plants' and our affiliates' activities, the results of audits, the status of improvements, complaints and the status of corrective actions. The committee discusses the policies for activities of quality assurance. Contents of the discussions are reported to the board meeting, and quality control systems are in place under management review.

\*An international standard on quality management system

### Reporting of Improvements and Survey Results at the Committee

<Temporary voluntary inspections>

In recent years, the falsification of inspection data by other companies has become a major social issue, and the Company has conducted a temporary voluntary inspection to check whether there are any improper or inappropriate behaviors related to quality control. As the results, although slight defects were found in the shipment management system for some products, it was confirmed that there were no improper or inappropriate behaviors related to quality control, such as falsifying, concealing, manipulating and fabricating. We reported this defect to the board meeting and take corrective actions, including notifying customers.

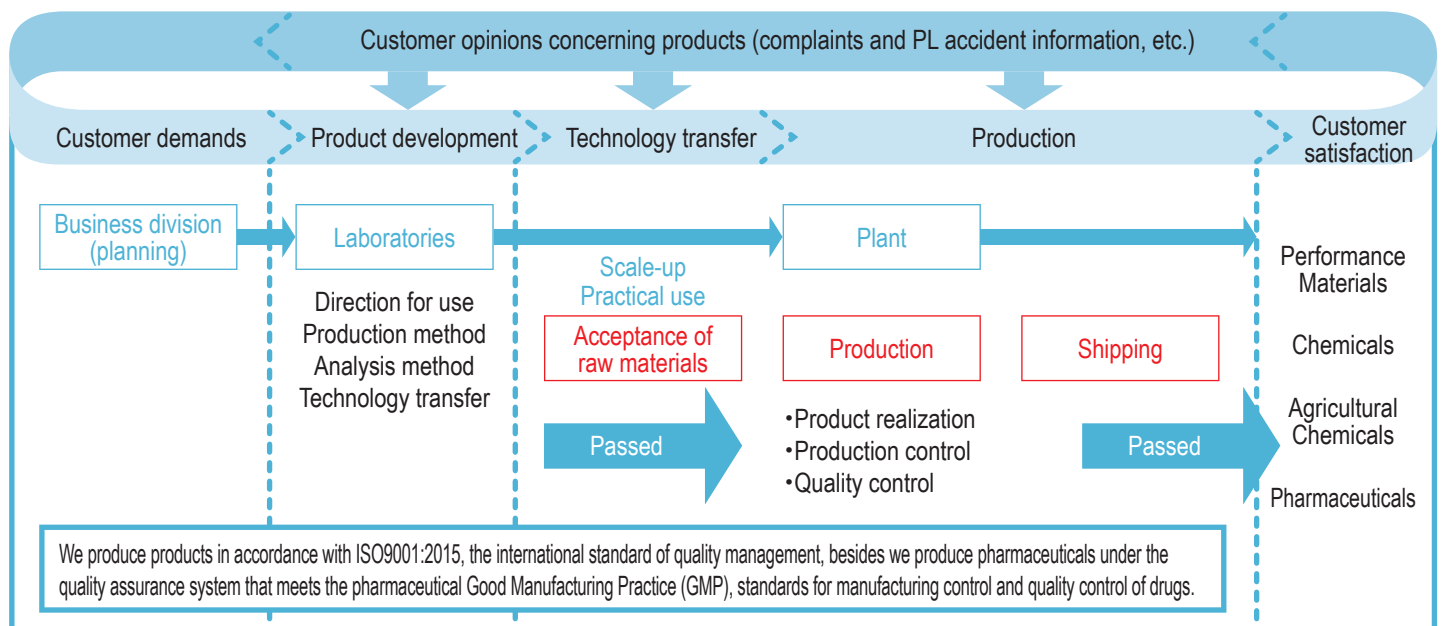
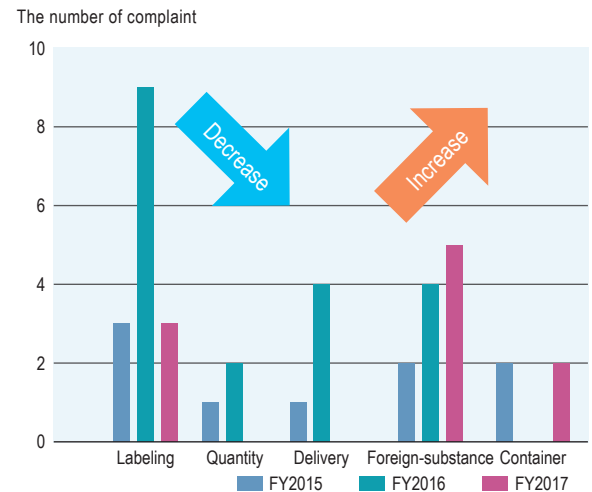
In addition, in order to implement preventive measures and continuously improve and maintain the system, we set out the "implementation of quality audits of the parent company and affiliated companies with an emphasis on prevention" as an action plan, and decided to give priority to the identification of potential risks in the shipping system.

<Intranet>

We have a corporate network that requires us to promptly collect customer opinions concerning products (including complaints and product liability accident information), evaluate them and take corrective action if necessary.

In FY2016, there was an increase in complaints regarding distributions, such as labeling, quantity, and delivery. In FY2017, the number of these complaints decreased due to the implementation of intensive auditing guidance for the process. This year, we decided to implement auditing guidance for foreign-substance, which has been increasing over the past three annuals, with a focus on the risk management system for foreign-substance contamination.

Moving forward, we will promote continuous improvements together with the plants to provide customers with safer, higher-quality products.



# Relationships with Business Partners

## Supply Chain Management

We have established a policy on the procurement of materials. We work on priority topics of CSR together with our business partners in our efforts to fulfill our corporate social responsibility.

Before outsourcing an operation such as the manufacture of important raw materials, intermediates and products, we ask the potential contractors to answer a questionnaire on CSR. We give priority to companies which fulfill our standards when selecting business partners. We revised the questionnaire in FY2017 to implement our procurement and purchase activity based on the purchase policy and to promote CSR activity in supply chain.

We also conduct on-site audits of suppliers in Japan and overseas to check their initiatives for CSR activities in detail, with a particular focus on their activities related to EHS in our efforts to promote supply chain management. In addition, we have made it our policy not to use conflict minerals and raw materials containing such minerals related to inhumane armed groups in the Democratic Republic of the Congo and surrounding countries.

### Main item in CSR questionnaire

Item	Content
1. Human Rights, Labor	Prohibition of forced or compulsory labor, Prohibition of child labor, Prohibition of inhumane treatment, Non-discrimination, Appropriate wages, Adequate hours of work, and Right to organize
2. Consideration for the Environment	Chemicals management, Resource and energy-saving, Reduction of GHG emissions, Reduction of waste, Biodiversity conservation, Water resources conservation, and Raw material procurement
3. Health and Safety	Health and safety at workplaces and facilities, Consideration for physically impact work, Occupational accidents response, Emergency response, and Health care
4. Ethic	Prohibition of corruption and bribery, Prohibition of abuse of dominant bargaining position, Prohibition of improper offering and receipt of profit, Prohibition of restrictive competition, Prohibition of insider trading, Elimination of antisocial forces, Consultation hotline, Privacy protection, and the Non-use of conflict minerals
5. Building of crisis management systems	Formulation of business continuity plans, Understanding of information on business partners and production bases, and Information security
6. Quality	Accurate information and Response to complaints

### Purchase Policy

We procure and purchase raw materials and materials in accordance with our Basic CSR Policy.

#### 1. Compliance with laws, regulations and social norms

We promote sound procurement and purchase activities by observing all relevant laws, regulations, social norms, and internal regulations, as well as corporate ethics.

#### 2. Fair, equitable, transparent trades

We continue to create opportunities for business with new suppliers, without adhering to past purchases or the corporate group, thereby ensuring fair, equitable, transparent trades.

#### 3. Procurement and purchase based on economic rationality

We undertake procurement and purchase that are optimal for us based on a comprehensive evaluation of quality, price, stable supply, technology development capabilities, stable management and other factors.

#### 4. Consideration for the global environment

To achieve a sustainable society, we strive to remain conscious of the protection of the global environment in our procurement and purchase activities.

#### 5. Establishment of partnership

Based on our fundamental recognition that all of our business partners are essential for executing businesses, we establish relationships of mutual trust with them in our efforts to achieve further development. We will also work on the following themes with our business partners in our efforts to fulfill our corporate social responsibility.

- 1) Compliance with laws, regulations, social norms and corporate ethics
- 2) Ensure safety and protecting the environment
- 3) Respect human rights and giving consideration to the work environment

# Relationships with Shareholders and Investors

We have formulated a Disclosure Policy and disclose information in accordance with the rules on timely disclosure established by the Tokyo Stock Exchange, Inc. on which our shares are listed. We also regularly report the opinions of shareholders and institutional investors, which are captured through dialogue, to the board meeting.

## Disclosure Policy (Excerpt)

### 1) Information Disclosure Standards

The Company will disclose its information in accordance with the “Financial Instruments and Exchange Act” and other laws and ordinances, and with the “Securities Listing Regulations”, and other rules concerned with timely disclosure established by Tokyo Stock Exchange, Inc. where the Company’s shares are listed (hereinafter the “Timely Disclosure Rules”).

In the case where there arises any matter with significant impact on securities investment decisions such as facts concerning decisions or occurrences, financial results and information on any subsidiary, where Tokyo Stock Exchange, Inc. makes an inquiry and requests disclosure of the fact concerned with the inquiry, or where any material content regarding the Company’s information already disclosed is changed, suspended or the like, the Company will disclose information in compliance with the Timely Disclosure Rules.

In addition, the Company endeavors to disclose company information other than that is required under the Timely Disclosure Rules (hereinafter “information subject to timely disclosure”), including materials presented in company briefing sessions, as positively and impartially as possible to meet investors’ requests.

### 2) Information Disclosure Methods

The Company will swiftly publish information that falls under the information subject to timely disclosure by means of the Timely Disclosure Network (TDnet) provided by Tokyo Stock Exchange, Inc., as well as on its own website. At the time of disclosing any information that is not subject to timely disclosure, the Company shall give consideration to transmission of the information to general investors in an appropriate, accurate and impartial manner in view of the objective of the Timely Disclosure Rules.

## Institutional Investors, Analysts and the Media

We hold a financial briefing meeting for institutional investors, analysts and the media every half year to explain the overall conditions of our business. This meeting is attended by the CFO / Officer in charge of Financial Department and the managers responsible for individual divisions. We also hold tours of our facilities for institutional investors and analysts as needed so that they can see our work sites in person and better understand our production and research. In addition, we participate every year in conferences in Japan and overseas hosted by securities companies.

## Overseas Investors

The CFO / Officer in charge of Financial Department participates every year in conferences hosted by securities companies or other entities that are held in the United States, Europe, Asia and other regions. At these conferences, the CFO provides explanations directly to overseas investors and exchanges opinions with them.

We publish news releases, business plans, presentation materials for full-year and first-half financial results briefing sessions in both Japanese and English at the same time, in principle, with the aim of disclosing information more promptly and fairly to investors in Japan and overseas.



▲ Financial results briefing meeting

## Private Investors

Once a year, we hold a briefing session for private investors, at which the CFO / Officer in charge of Financial Department provides explanations. We also hold a convivial party for shareholders after the end of each general shareholders’ meeting to promote constructive dialogues with the shareholders who participated in the meeting.

## Environmental Reporting Platform Development Pilot Project

As part of our efforts to disclose ESG information, which has been growing in demand from institutional investors in recent years, we have participated in the “Environmental Reporting Platform Development Pilot Project” established by the Ministry of the Environment.

## Relationships with Communities and Society

We recognize that creating a sustainable society is essential for the growth and development of the Company. As a corporate citizen, we engage in a range of social contribution activities in addition to providing products and services with new values that help enrich people's lives.

### Support for the Next Generation

We have been involved with the "Tobitate! (Leap for Tomorrow) Young Ambassador Program", a joint government-industry project for supporting students who wish to study overseas since FY2015. This program is aimed at fostering globally competitive individuals who will demonstrate their capabilities on the world stage in the future. Japanese companies make donations and regularly cooperate with student selection and other processes as judges to send high school and university students, who are the potential future leaders of Japan, to various parts of the world.

And we participated in the event, "Summer Riko-Challe" for the first time in 2017. This event cohosted by the Cabinet Office, the Ministry of Education, Culture, Sports, Science and Technology and Keidanren (the Japan Business Federation) is aimed at arousing interest in and promoting understanding of careers in the field of science and technology among female students. Thirteen female junior high school students from Saitama and other prefectures participated in the work experience at the Biological Research Laboratories and the exchange meeting with female researchers to deepen their interest in science and engineering.

In addition, we provide a various support activities for the next generation. Employees visited to elementary schools near the Chemical Research Laboratories and the Materials Research Laboratories for classes. At the Biological Science Laboratories, junior high school students had a work experience. Plants and laboratories accepted interns and dispatched part-time lectures.



▲ Internship at Sodegaura Plant

### Interaction with Local Residents

We hold plant tours and explanatory meetings on regular basis for local residents and schools. During these meetings we explain our initiatives for disaster prevention and environmental protection in an effort to show that the plants are safe and secure. We also participate in local beautification activities such as cleaning of public roads and nearby stations around the plants, and activities for planting flowers together with local residents.

#### TOPICS

#### Cherry blossom festival at Onoda Plant

Onoda Plant takes place a Cherry blossom festival every year to develop the deep and warm personal relationship with local residents. This festival marked the 27th on April 7, 2018 since Onoda Plant started the event in 1990. Everyone was able to feel a sense of unity with the enthusiasm of staff of Onoda Plant through a variety of hand-made programs. It blew out the cold though it was slightly chilly day.



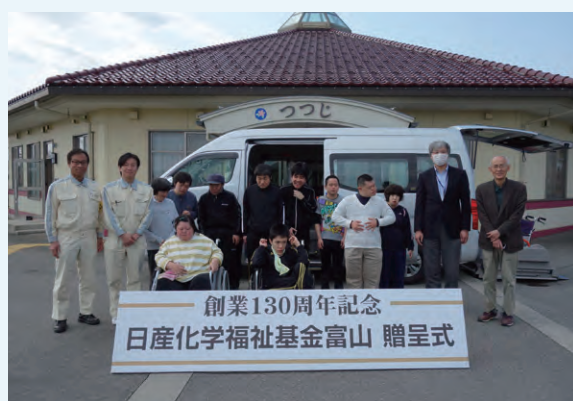
## Welfare Fund

We have been engaged in welfare fund activities since 1997 as a part of our activities for contributing to local communities. These activities are carried out at the head office and individual offices, plants, laboratories and group companies. They are also conducted as joint projects. In these activities, there are cases that staff members visit welfare facilities and ask them what items they need before considering what to donate. Overall, the activities are carried out in a community-based manner.

### TOPICS

#### Welfare Fund Activities (Extraordinary Contributions to Commemorate the 130th Anniversary)

FY2017 is the 20th anniversary of the Welfare Fund, the group made extraordinary contributions in three districts: Toyama, Sanyo Onoda (Yamaguchi Prefecture), and Saitama as one of the events commemorating the 130th anniversary of Nissan Chemical's foundation. We were able to donate expensive goods that were truly needed in the field of welfare and that were difficult to donate in ordinary years, such as welfare vehicles, to support facilities for the disabled and extraordinary nursing homes for the elderly.



▲ Presentation ceremony in the Toyama area



▲ Presentation ceremony in the Sanyo Onoda area



▲ Presentation ceremony in the Saitama area

## Industry Awards

To support the development of synthetic organic chemistry, we established the "Nissan Chemical Award for Novel Reaction & Method" in FY2009 as an award presented by the Society of Synthetic Organic Chemistry, Japan. This award is granted to researchers who have made creative, excellent achievements in research related to novel reactions and methods. The research undertaken by Professor Takanori Shibata of Waseda University, who was the FY2017 recipient of the award, provides new method for simple synthesis of a group of compounds which have high synthetic value-added asymmetric backbones with high atomic efficiency using a catalyst that can be easily prepared from commercially available iridium and rhodium complexes, and asymmetric ligands. This research has contributed greatly to the development of this field.

# Relationships with Employees

## Approach

In order to achieve "Progress2030" and "Vista2021," it is essential that each employee demonstrates his or her ability and revitalizes organization. To this end, we are implementing ranges of initiatives, including human resource development and the promotion of diversity. In addition, in order to create a comfortable workplace, we are promoting mental and other health initiatives. In February 2018, as in the last year, we received certification under the 2018 Certified Health and Productivity Management Organization Recognition Program (White 500)\*. We will continue to create an organization, system, and workplace environment that will enable employees to fully demonstrate their capabilities.

\*A program for recognizing "health and productivity management" initiatives with which employee health management is considered from the viewpoint of business administration and put into practice strategically.

## Personnel system

We aim to create an organization in which diverse human resources can work together and enjoy the challenge of innovation to realize corporate vision in 2030. To this end, we are promoting the following new measures while maintaining the current framework of our professional qualification system.

- Establishment of the "Ideal Human Resource Portfolio" and Human Resource Development Policy
- Introduction of career support programs that encourage individuals to take on "challenges"
- Development of human resources with management capability, business creativity and global competitiveness, and enhancement of measures to foster them at an early stage

## Fair Personnel Evaluation

We have positioned dialogue as a means of communication to overcome conflicts and cooperation by freely communicating with each other, and we are striving to improve the quality and speed of business through the management of objectives for each fiscal year.

In addition to this target management, our evaluation system is designed to enable employees to develop their strengths and demonstrate their personality through two-way communication between themselves and their superiors so that "self-independent individual" realizes how one wants it to be, thereby enabling them to work with enthusiasm while realizing growth. We are enhancing transparency and employees' satisfaction, and strive to fairly evaluate personnel according to results and contributions.

The final evaluation for each fiscal year is fed back by the Personnel Department to the department, the secondary evaluators, the primary evaluators, and the employees under the four objectives of 1) to motivate them to take on challenges, 2) to improve their satisfaction, 3) to foster a sense of human resource development among their superiors, and 4) to clarify their capabilities development goals.

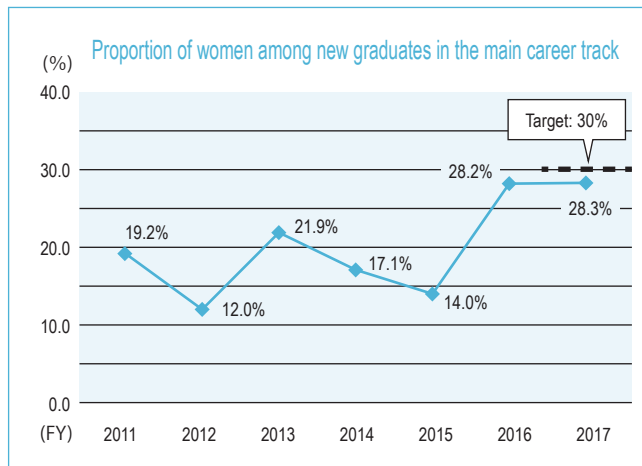
In the annual evaluator training, employees are trained in practical methods of evaluating, communicating, and putting those methods into practice, with the objectives of 1) understanding the role and significance of the evaluation in the personnel system, and 2) creating a system in which the evaluation is appropriately operated as the cornerstone of human resource development, while keeping in mind the basics of evaluations that should be learned by evaluators.

## Respect for Diversity, Personal Characteristics and Ways of Thinking of Individuals

At Nissan Chemical, a diverse range of individuals have been actively contributing to the group with their excellent talents in a wide range of fields irrespective of the age, gender and nationality and we will continue to promote respect for diversity. One thing that we are proud of is our high employee retention rate, such as 15.9-year of the average length of service, it makes us believe that our workplace environment allows each individual employee to play an active part.

### Action Plan for Promoting Active Participation of Women in the Workplace (Excerpt)

- Period of the plan : Five years from April 1, 2016 to March 31, 2021
- Target : Increase the proportion of women among employees in the main career track to 10% or higher
- Actions to take
  1. Increase the proportion of women among new graduates in the main career track to 30% or higher
  2. Assign women proactively to departments with low rates of female employees in the main career track



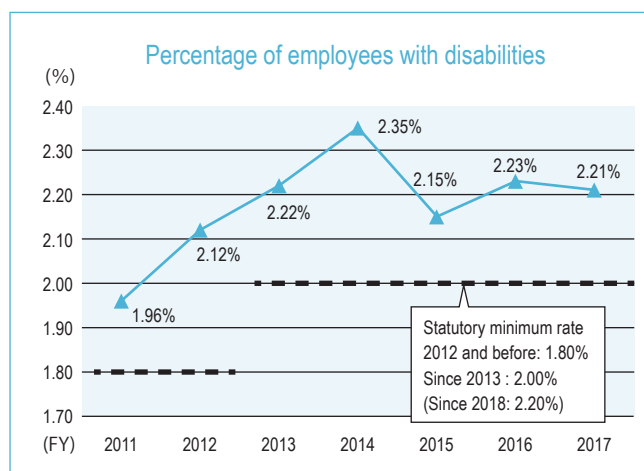


## Activities for Recruiting Foreign Students

We recruit foreign students as a measure for developing globally competitive human resources. As a result, three foreign people joined in April 2018. Moving forward, we will continue to promote the diversity of our human resources by employing foreign students continuously and create an organization that will allow diverse human resources to demonstrate their capabilities.

## Employment of People with Disabilities

For more than ten years, we have kept the percentage of employees with disabilities at a level above the statutory minimum rate. We will continue to observe the legal requirements and remain proactive in providing workplaces that enable the active participation of people with disabilities.



## Training and Capability Development

We believe it is essential for human resource development that "each employee should continue to educate themselves voluntarily in their efforts to develop themselves". We have therefore introduced various human resource development programs for our employees who aspire to learn new things and develop themselves.

### Educational Training System

	Developing leadership			Improving research and development capabilities and production technology capabilities	Developing a cosmopolitan way of thinking	Support for career development	Cultural education
	Managerial position / C class	A class	Common				
Managerial positions			Evaluator training	Managerial position / C class	Managerial position / C class	Common	Common
Non-managerial positions	<ul style="list-style-type: none"> <li>Training before promotion to managerial position</li> <li>Training before promotion to C3 class</li> <li>Third year self-start training</li> <li>Second year self-start training</li> <li>New employee self-start training</li> </ul>	<ul style="list-style-type: none"> <li>Training for improving on-site capabilities</li> <li>Training before promotion to A3 class</li> <li>Business improvement training</li> <li>New employee training</li> </ul>		<ul style="list-style-type: none"> <li>Internal research exchange meeting</li> <li>Participation in academic meetings</li> <li>Dispatch to external research institutions</li> <li>R&amp;D strategic planning training</li> <li>Theme proposal system</li> <li>Strategic OJT</li> <li>Production technology presentation</li> </ul>	<ul style="list-style-type: none"> <li>Domestic and overseas study programs</li> <li>Cross-cultural communication training (Overseas language program, English conversation training, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Dispatch to external classes for acquiring specialized knowledge</li> <li>Acquisition of qualifications</li> <li>Correspondence course</li> </ul>	<ul style="list-style-type: none"> <li>Training on health management / promotion</li> <li>Compliance training</li> <li>CSR training</li> </ul>

### List of training programs (implemented in FY2017)

Name	Content	Number of trainees	Period
New employee training	Improvement of communication skills / Career training	39	21days
New employee follow up training	Improvement of communication skills / Cultivation of stress management skills	39	2days
Second year self-start training	Presentation of assigned research papers	43	1day
Third year self-start training	Presentation of assigned research papers	37	1day
C2 kick-off training	Development of junior leadership / Career education	37	2days
Training before promotion to C3 class / Managerial position	Developing the capability of setting essential challenges and the capability of formulating strategies	37	6days
Training before promotion to A3 class	Development of leadership	20	4days
Evaluator training	Improvement of evaluation skills	30	1day
Domestic and overseas study program	Development of next-generation leaders	5	
Overseas language study program	Development of globally competitive human resources	7	90days
E-mail writing training	Improvement of skills in writing e-mail in English	67	1day
Strategic OJT	Improvement of capability of developing human resources	18	
Correspondence course	Improvement of business execution capability	602 cases	

## Awards Program

Every year we grant awards to employees who have made beneficial inventions, devised improvement measures, or made remarkable achievements and contributions. Regarding intellectual properties, we also reward excellent inventions selected from among patent-pending inventions at an early stage in an effort to create greater incentive for R&D, discover excellent inventions and improve upon their quality and creativity.

### FY2017 Award (Award-winning projects: FY2016)

Name	Presenter	Content	Number of awards	Number of rewarded
Central Awards	President and CEO	Commend employees who have made beneficial inventions, devised improvement measures, or made remarkable achievements and contributions.	1	5
Division Awards	Head of each division		2	19
Office Awards	Head of each office		3	18
Rewards for Excellent Inventions	Officer in charge of Intellectual Property Department	Reward excellent inventions at an early stage to promote the improvement of R&D capabilities. Rank S rewards are granted to more excellent inventions.	18 (Rank S: 3 inventions)	58



▲ Central Awards presentation ceremony

## Creation of a Comfortable Workplace

We have introduced a wide variety of programs and measures that enable employees to work in a highly productive manner and achieve a good work-life balance. In addition to maintaining the high rate of employees taking annual leave of 70% or more in recent years, we are also aiming to support more efficient ways of working and taking time off. For example, we have decided to implement a new hourly leave system by the end of FY2018.

### Systems for Promoting a Good Work-Life balance

Name	Content
Flextime	This system has been introduced at the head office and laboratories.
Childcare Leave	In the case that certain requirements are fulfilled, an employee may take childcare leave until his or her child is two years old or until the coming April 20 after the child's first birthday.
Paternity Leave	A male employee whose spouse gave birth to a child may take up to seven days of paternity leave (paid) within eight weeks of the child's birth.
Nursing Care Leave	An employee may use up to 20 days per year of annual leave which has been saved up for childcare or spousal care and which is no longer valid.
Shorter Working Hours	Specified working hours may be shortened by units of 30 minutes and by up to 120 minutes for looking after children in third grade (elementary school) or younger.
Half-day Leave	An employee may take annual leave by units of half days, with an upper limit of 30 times per year.
Planned Leave	We recommended 2days of company-wide planned leave and 3days of individual planned leave annually.
Hourly Annual Leave (introduced in November 2018)	An employee may take hourly annual leave up to 24 hours.
Annual Leave Accumulation	An employee may save up a maximum of 40 days of annual leave that are invalid and use them as medical leave, leave for their own sickness, to look after elderly or sick family members or for other similar purposes.
Refreshment Leave	An employee may take ten consecutive days of leave (paid) after becoming 50 years old. Financial aid is also granted.
Re-employment Refreshment Leave	An employee may take three consecutive days of leave (paid) before or after their mandatory retirement.
Overseas Business Trip Special Leave	An employee who travel long hours and return to work on Sunday will be granted 1 day leave (paid).
Family Care Leave	In the case that certain requirements are fulfilled, an employee may take up to 365 days of family care leave in total per family member needing care.

### Support Raising Next-Generation Children

Based on the "Act on Advancement of Measures to Support Raising Next-Generation Children", we are working to improve the employment environment and diverse labor conditions so that employees can fully demonstrate their capabilities while balancing childcare and work. We also encourage male employees to participate in childcare by providing paid paternity leave. In recognition of these initiatives, we were granted Next Generation Accreditation Mark (as known as Kurumin) by the Tokyo Labour Bureau of the Ministry of Health, Labour and Welfare, as a company who supports childcare well.



### Promotion of Appropriate Work Hours

- Workshop for work hours: We held workshops to learn about the basics of working hours at meetings of personnel managers and labor union training sessions.
- Introduction of new system for work management: We have introduced a new system that enables timely monitoring and visualization of working hours and remaining annual leave.

## Countermeasures against Harassment

### Countermeasures against harassment related to pregnancy, childbirth, childcare leave, family care leave, etc., sexual harassment and power harassment

- Three types of harassment are subject to disciplinary action in our rule of employment.
- We post explanatory materials and consultation services on our intranet to enable employees to access and consult with us at any time.
- Since 2013, we have introduced training for obtaining basic knowledge on power harassment as part of the training before promotion to A3 class (positions equivalent to team leaders at plant). More than 100 employees have undergone this training.

## Health

We have promoted mental and physical health initiatives based on the belief that employees' health is a "foundation that supports sound corporate growth". In 2018, we have established a Basic Health Policy with the aim of maintaining and improving the health of our employees.

Concretely, we are implementing measures for lifestyle-related diseases, mental health care, and quitting smoking to promote the health of our employees in cooperation with the health insurance association.

### Basic Health Policy

Mental and physical health is a foundation that supports sound corporate growth from the viewpoint of the happiness of employees and their families, as well as the trust of the corporate and the smooth operation of the business. We and our employees will work together to promote initiatives aimed at maintaining and promoting health in a multifaceted manner and aim to be a dynamic company.

1. Employees' health is based on their own management and we will provide support.
2. We will implement effective and flexible measures through smooth internal and external cooperation.
3. We will ensure the proper use and management of personal information and comply with laws and regulations.

### 2018 Certified Health and Productivity Management Organization Recognition Program (White 500)

- In February 2018, we have been recognized under the 2018 Certified Health and Productivity Management Organization Recognition Program (White 500) for two consecutive years.



### Health Promotion Committee

- The members of this committee are selected from the Company, the Nissan Chemical Health Insurance Association, and the Nissan Chemical Labor Union, two from each, and meet regularly to discuss health promotion measures. The committee met four times in FY2017.

### Regular Health Checkup

- We encourage employees to undergo regular health checkups by targeting a rate of 100%. We achieved the target rate of 100%\*1 in FY2017.

\*1 Employees on temporary retirement, etc. are excluded.

### Prevention of Severe Disease

- We are reinforcing guidance for the preparatory group for diabetes and specific health guidance in cooperation with Nissan Chemical Health Insurance Association.

### Mental Health Measures

- We carry out stress check, analyze its results and give feedback to employees. We also conduct training as necessary based on the results.
- Implementation of stress check: undergone by 100% of all employee
- Organizational analysis of stress check and reporting session: A total twelve reporting sessions were held for executives at the head office, laboratories and plants. The analysis and holding of reporting sessions were outsourced to an external specialty company.
- Training: self-care training was provided four times to new employees and those who had never undergone the training.\*2

\*2 Care that can be provided to oneself. It includes being aware of one's own stress and preventing or coping with stress.

## Labor-Management Relationship Based on Open Dialogue and Mutual Understanding

Nissan Chemical and the Nissan Chemical Labor Union have built a good relationship based on mutual understanding and trust. They strive to improve labor conditions and develop systems through discussions as good partners to the management by taking a range of measures, including holding periodic meetings for reporting business results and initiatives for better work-life balance.

All non-managerial employees, excluding those who have concluded a special agreement with the Company, belong to the Nissan Chemical Labor Union. The number of its member is 1,465 (including those from some affiliates).

Name of the meeting	Content	Number of meetings held in FY2017	Number of participants per meeting
Central Management Advisory Council	The policies and financial results of the Company are explained by the management to the labor union members.	2	Company: 6 Labor union: 7
Business Location Management Advisory Council	1) Explanation of the contents of the Central Management Advisory Council 2) Discussions about problems that are specific to each business location	Differs among business locations	Executives of the business location Executives of the labor union branch
Dialogue activities	Management and general union members set opportunities to have open dialogues. Union members can discuss issues and problems of their own workplaces directly with the management.	3	Company: 3 Labor union: slightly more than 10
Labor-Management Committee	The Personnel Department and executive members of the labor union regularly exchange opinions about a wide range of problems and hold discussions to solve issues.	9	Company: 3 Labor union: 7
Health Promotion Committee	Two each are selected from the Company, the health insurance association, and the labor union as its members, who discuss measures for promoting good health among employees and other issues.	4	Company: 2 Health insurance union: 2 Labor union: 2

# Financial Section

## Financial Review

Financial Review of the Year Ended March 31, 2018

### Overview

The domestic economy for the current consolidated fiscal year (April 1, 2017 to March 31, 2018) continued to recover moderately as corporate earnings improvement, capital investment and consumer spending recovery amid the expansion of the global economy. Under such circumstance, in the Chemicals Segment, sales of Basic Chemicals whereas and Fine Chemicals decreased from the same period of the previous year. In the Performance Materials Segment, sales of Display Materials, Semiconductor Materials and Inorganic Materials increased. In the Agricultural Chemicals Segment, shipments of active ingredients for veterinary pharmaceuticals increased. In the Pharmaceutical Segment, the domestic sales of "LIVALO" (anti-cholesterol drug) decreased due to expansion of generic products.

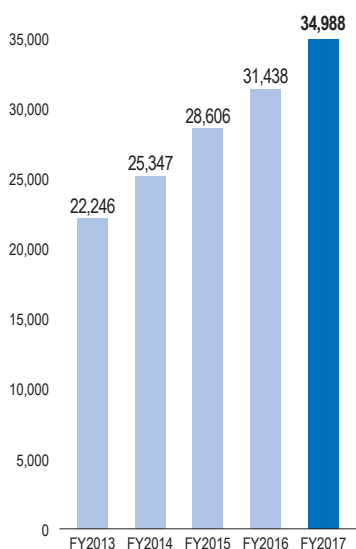
### Operating Results

As a result, the Company's results for the current fiscal year were net sales 193,389 million yen (an increase of 131million yen), operating income 34,988 million yen (an increase of 3,550 million yen) and ordinary income 36,235 million yen (an increase of 4,521 million yen), and net income attributable to owners of parent 27,142 million yen (an increase of 3,116 million yen). Operating income and ordinary income reached record highs for the fourth consecutive year and net income attributable to owners of parent for the fifth consecutive year.

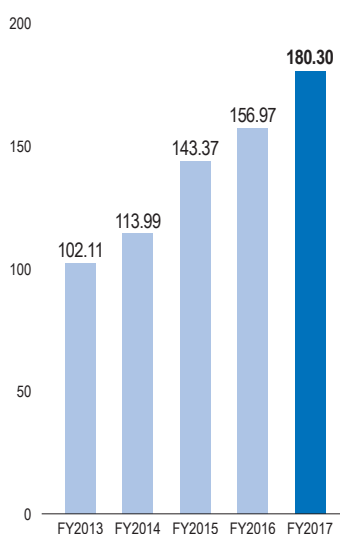
### Financial Position

Total assets as of March 31, 2018 was 249,043 million yen (an increase of 17,294 million yen from the previous year) due to increases in notes and accounts receivable-trade and invest-

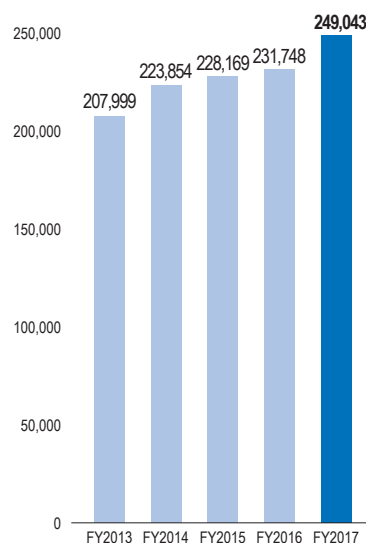
Operating Income (Millions of Yen)



Net Income per Share (Yen)



Total Assets (Millions of Yen)



ment securities.

Total liabilities as of March 31, 2018 was 72,678 million yen (an increase of 4,637 million yen) due to increases in notes and accounts payable-trade.

Net assets as of March 31, 2018 was 176,364 million yen (an increase of 12,657 million yen). As a result, the equity ratio was 70.1% (an increase of 0.2 point).

### Position of Cash Flow

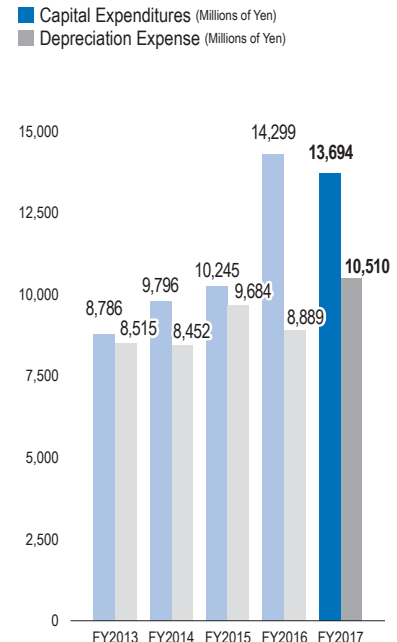
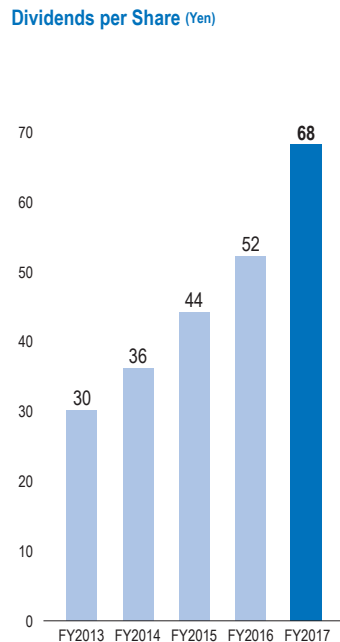
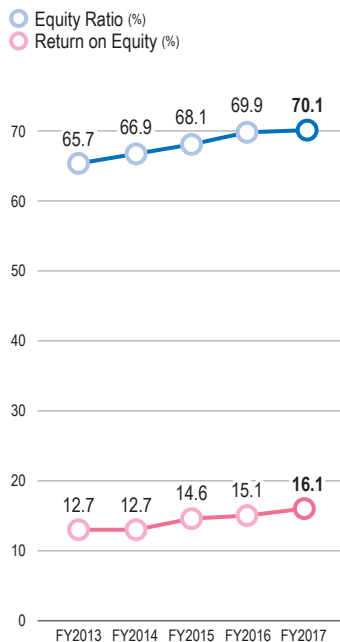
Deducting income taxes paid from income before income taxes and non-controlling interests, depreciation and changes in working capital, net cash provided by operating activities for the consolidated fiscal year ended March 31, 2018 was 37,691 million yen (32,491 million yen for the previous year).

Due to mainly investment in plant and equipment, net cash

used in investing activities for the consolidated fiscal year ended March 31, 2018 was 15,244 million yen (13,152 million yen for the previous year).

Due to share repurchase, payment of dividends and repayment of long-term loans payable, net cash used in financing activities for the consolidated fiscal year ended March 31, 2018 was 20,268 million yen (19,042 million yen for the previous year).

As a result, cash and cash equivalents for the consolidated fiscal year ended March 31, 2018 was 37,702 million yen (35,701 million yen for the previous year), reflecting 177 million yen effect of exchange rate changes. It increased by 2,000 million yen compared to the previous year.



# Consolidated Balance Sheets

For FY2017 and FY2016

Assets	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
<b>Current assets</b>			
Cash and deposits	¥ 37,702	¥ 35,701	\$ 354,776
Notes and accounts receivable - trade	65,422	60,075	615,621
Merchandise and finished goods	29,855	28,602	280,935
Work in process	115	64	1,082
Raw materials and supplies	7,797	7,778	73,370
Accounts receivable - other	1,831	2,379	17,230
Short-term loans receivable	494	1,065	4,649
Deferred tax assets	3,019	2,708	28,409
Other	2,422	2,221	22,791
Allowance for doubtful accounts	(34)	(33)	(320)
Total current assets	148,626	140,564	1,398,570
<b>Non-current assets</b>			
Property, plant and equipment			
Buildings and structures	63,985	62,253	602,098
Accumulated depreciation and impairment loss	(39,573)	(38,428)	(372,382)
Buildings and structures, net	24,411	23,824	229,707
Machinery, equipment and vehicles	125,451	120,540	1,180,493
Accumulated depreciation and impairment loss	(112,434)	(109,038)	(1,058,003)
Machinery, equipment and vehicles, net	13,017	11,502	122,490
Tools, furniture and fixtures	37,323	35,717	351,209
Accumulated depreciation and impairment loss	(32,261)	(30,880)	(303,576)
Tools, furniture and fixtures, net	5,061	4,837	47,624
Land	9,047	9,198	85,132
Leased assets	22	103	207
Accumulated depreciation	(22)	(90)	(207)
Leased assets, net	0	12	0
Construction in progress	2,936	2,594	27,628
Total property, plant and equipment	54,473	51,969	512,591
<b>Intangible assets</b>			
Software	775	610	7,293
Other	993	966	9,344
Total intangible assets	1,768	1,577	16,637
<b>Investments and other assets</b>			
Investment securities	38,517	32,465	362,445
Deferred tax assets	115	125	1,082
Net defined benefit asset	2,193	1,987	20,636
Other	3,440	3,156	32,370
Allowance for doubtful accounts	(92)	(98)	(866)
Total investments and other assets	44,174	37,636	415,677
Total non-current assets	100,416	91,183	944,914
<b>Total assets</b>	¥249,043	¥231,748	\$2,343,493

Liabilities	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
<b>Current Liabilities</b>			
Notes and accounts payable - trade	¥ 18,579	¥ 14,943	\$ 174,828
Short-term loans payable	23,591	23,155	221,991
Current portion of long-term loans payable	2,554	3,070	24,033
Income taxes payable	5,156	3,288	48,518
Provision for bonuses	2,011	1,920	18,923
Provision for directors' bonuses	27	28	254
Other	10,950	11,259	103,039
Total current liabilities	62,871	57,665	591,616
<b>Non-current liabilities</b>			
Long-term loans payable	2,446	4,580	23,017
Deferred tax liabilities	4,341	2,649	40,849
Provision for business structure improvement	516	594	4,856
Provision for loss on business of subsidiaries and affiliates	309	309	2,908
Net defined benefit liability	126	101	1,186
Other	2,068	2,141	19,460
Total non-current liabilities	9,807	10,376	92,284
<b>Total liabilities</b>	<b>72,678</b>	<b>68,041</b>	<b>683,900</b>
<b>Net assets</b>			
<b>Shareholders' equity</b>			
Capital stock	18,942	18,942	178,244
Capital surplus	13,613	13,611	128,098
Retained earnings	133,822	126,370	1,259,264
Treasury shares	(5,962)	(7,587)	(56,102)
Total shareholders' equity	160,416	151,337	1,509,514
<b>Accumulated other comprehensive income</b>			
Valuation difference on available-for-sale securities	13,653	10,079	128,475
Foreign currency translation adjustment	125	243	1,176
Remeasurements of defined benefit plans	390	380	3,670
Total Accumulated other comprehensive income	14,170	10,703	133,340
<b>Non-controlling interests</b>	<b>1,778</b>	<b>1,666</b>	<b>16,731</b>
Total net assets	176,364	163,707	1,659,584
<b>Total liabilities and net assets</b>	<b>¥249,043</b>	<b>¥231,748</b>	<b>\$2,343,493</b>

# Consolidated Statements of Income / Consolidated Statements of Comprehensive Income

For FY2017 and FY2016

## Consolidated Statements of Income

	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
<b>Net sales</b>	<b>¥193,389</b>	¥180,289	<b>\$1,819,789</b>
<b>Cost of sales</b>	<b>113,513</b>	105,916	<b>1,068,157</b>
<b>Gross profit</b>	<b>79,876</b>	74,372	<b>751,633</b>
<b>Selling, general and administrative expenses</b>	<b>44,887</b>	42,934	<b>422,386</b>
<b>Operating income</b>	<b>34,988</b>	31,438	<b>329,237</b>
<b>Non-operating income</b>			
Interest income	26	20	245
Dividend income	817	726	7,688
Equity in earnings of affiliates	1,324	701	12,459
Other	768	805	7,227
Total non-operating income	2,937	2,253	27,637
<b>Non-operating expenses</b>			
Interest expenses	126	156	1,186
Loss on disposal of non-current assets	591	601	5,561
Plant stop losses	270	274	2,541
Impairment loss	—	220	—
Foreign exchange losses	460	314	4,329
Other	240	411	2,258
Total non-operating expenses	1,690	1,978	15,903
<b>Ordinary income</b>	<b>36,235</b>	31,713	<b>340,971</b>
<b>Extraordinary income</b>	—	—	—
<b>Extraordinary losses</b>	—	—	—
<b>Income before income taxes and non-controlling interests</b>	<b>36,235</b>	31,713	<b>340,971</b>
Income taxes - current	9,146	7,439	86,064
Income taxes - deferred	(214)	81	(2,014)
Total income taxes	8,932	7,520	84,050
<b>Net income</b>	<b>27,302</b>	24,192	<b>256,912</b>
Net income attributable to non-controlling interests	159	166	1,496
<b>Net income attributable to owners of parent</b>	<b>¥ 27,142</b>	¥ 24,026	<b>\$ 255,406</b>

## Consolidated Statements of Comprehensive Income

	(Millions of Yen)		(Thousands of U.S. Dollars)
	FY2017	FY2016	FY2017
<b>Net income</b>	<b>¥27,302</b>	¥24,192	<b>\$256,912</b>
<b>Other comprehensive income</b>			
Valuation difference on available-for-sale securities	3,575	(436)	33,641
Foreign currency translation adjustment	(124)	188	(1,167)
Remeasurements of defined benefit plans, net of tax	10	(174)	94
Share of other comprehensive income of affiliates accounted for using equity method	(1)	1	(9)
Total other comprehensive income	3,460	(420)	32,559
<b>Comprehensive income</b>	<b>30,763</b>	23,771	<b>289,480</b>
(Comprehensive income attribute to)			
Owners of parent	30,609	23,584	288,030
Non-controlling interests	¥ 153	¥ 186	\$ 1,440



# Consolidated Statements of Changes in Net Assets

For FY2017

	(Millions of Yen)				
	Total shareholders' equity				Total shareholders' equity
	Capital stock	Capital surplus	Retained earnings	Treasury shares	
<b>Balance at beginning of current period</b>	¥18,942	¥13,611	¥126,370	¥(7,587)	¥151,337
<b>Changes of items during period</b>					
Dividends of surplus			(9,063)		(9,063)
Net income attributable to owners of parent			27,142		27,142
Share repurchase				(9,002)	(9,002)
Cancellation of treasury shares			(10,627)	10,627	—
Change in treasury shares of parent arising from transactions with non controlling shareholders		2			2
Net changes of items other than shareholders' equity					
<b>Total changes of items during period</b>	—	2	7,452	1,624	9,078
<b>Balance at end of current period</b>	¥18,942	¥13,613	¥133,822	¥(5,962)	¥160,416

	Accumulated other comprehensive income					Total net assets
	Valuation difference on available-for-sale securities	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income	Non-controlling interests	
<b>Balance at beginning of current period</b>	¥10,079	¥243	¥380	¥10,703	¥1,666	¥163,707
<b>Changes of items during period</b>						
Dividends of surplus						(9,063)
Net income attributable to owners of parent						27,142
Share repurchase						(9,002)
Cancellation of treasury shares						—
Change in treasury shares of parent arising from transactions with non controlling shareholders						2
Net changes of items other than shareholders' equity	3,574	(118)	10	3,466	111	3,578
<b>Total changes of items during period</b>	3,574	(118)	10	3,466	111	12,657
<b>Balance at end of current period</b>	¥13,653	¥125	¥390	¥14,170	¥1,778	¥176,364

# Consolidated Statements of Changes in Net Assets

For FY2016

	(Millions of Yen)				
	Total shareholders' equity				Total shareholders' equity
	Capital stock	Capital surplus	Retained earnings	Treasury shares	
<b>Balance at beginning of current period</b>	¥18,942	¥13,611	¥115,878	¥(4,281)	¥144,151
<b>Changes of items during period</b>					
Dividends of surplus			(7,680)		(7,680)
Net income attributable to owners of parent			24,026		24,026
Change in scope of consolidation			(157)		(157)
Share repurchase				(9,002)	(9,002)
Disposal of treasury shares		0		0	0
Cancellation of treasury shares		(0)	(5,695)	5,695	—
Net changes of items other than shareholders' equity					
<b>Total changes of items during period</b>	—	—	10,492	(3,305)	7,186
<b>Balance at end of current period</b>	¥18,942	¥13,611	¥126,370	¥(7,587)	¥151,337

	Accumulated other comprehensive income					
	Valuation difference on available-for-sale securities	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income	Non-controlling interests	Total net assets
	<b>Balance at beginning of current period</b>	¥10,515	¥171	¥554	¥11,241	¥1,531
<b>Changes of items during period</b>						
Dividends of surplus						(7,680)
Net income attributable to owners of parent						24,026
Change in scope of consolidation						(157)
Share repurchase						(9,002)
Disposal of treasury shares						0
Cancellation of treasury shares						—
Net changes of items other than shareholders' equity	(435)	72	(174)	(537)	134	(403)
<b>Total changes of items during period</b>	(435)	72	(174)	(537)	134	6,782
<b>Balance at end of current period</b>	¥10,079	¥243	¥380	¥10,703	¥1,666	¥163,707

## For FY2017

	(Thousands of U.S. dollars)				
	Total shareholders' equity				Total shareholders' equity
	Capital stock	Capital surplus	Retained earnings	Treasury shares	
<b>Balance at beginning of current period</b>	\$178,244	\$128,079	\$1,189,141	\$(71,394)	\$1,424,080
<b>Changes of items during period</b>					
Dividends of surplus			(85,283)		(85,283)
Net income attributable to owners of parent			255,406		255,406
Share repurchase				(84,709)	(84,709)
Cancellation of treasury shares			(100,000)	100,000	—
Change in treasury shares of parent arising from transactions with non controlling shareholders				19	19
Net changes of items other than shareholders' equity					
<b>Total changes of items during period</b>	—	19	70,123	15,282	85,424
<b>Balance at end of current period</b>	\$178,244	\$128,098	\$1,259,264	\$(56,102)	\$1,509,514

	Accumulated other comprehensive income					Non-controlling interests	Total net assets
	Valuation difference on available-for-sale securities	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income			
<b>Balance at beginning of current period</b>	\$ 94,843	\$2,287	\$3,576	\$100,715	\$15,677	\$1,540,482	
<b>Changes of items during period</b>							
Dividends of surplus						(85,283)	
Net income attributable to owners of parent						255,406	
Share repurchase						(84,709)	
Cancellation of treasury shares						—	
Change in treasury shares of parent arising from transactions with non controlling shareholders						19	
Net changes of items other than shareholders' equity	33,631	(1,110)	94	32,615	1,045	33,669	
<b>Total changes of items during period</b>	33,631	(1,110)	94	32,615	1,045	119,102	
<b>Balance at end of current period</b>	\$128,475	\$1,176	\$3,670	\$133,340	\$16,731	\$1,659,584	

# Consolidated Statements of Cash Flows

For FY2017 and FY2016

	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
<b>Cash flows from operating activities</b>			
Income before income taxes and non-controlling interests	¥36,235	¥31,713	\$340,971
Depreciation	10,510	8,889	98,899
Impairment loss	—	220	—
Interest and dividend income	(844)	(746)	(7,942)
Interest expenses	126	156	1,186
Increase (decrease) in provision for business structure improvement	—	(86)	—
Loss (gain) on disposal of non-current assets	591	601	5,561
Decrease (increase) in notes and accounts receivable - trade	(5,266)	(2,573)	(49,553)
Decrease (increase) in inventories	(1,309)	2,054	(12,318)
Increase (decrease) in notes and accounts payable - trade	3,494	(334)	32,879
Other	(328)	(474)	(3,086)
Subtotal	43,209	39,419	406,596
Interest and dividend income received	1,881	2,175	17,700
Interest expenses paid	(125)	(156)	(1,176)
Income taxes paid	(7,273)	(8,947)	(68,439)
Net cash provided by (used in) operating activities	37,691	32,491	354,672
<b>Cash flows from investing activities</b>			
Purchase of investment securities	(759)	(787)	(7,142)
Proceeds from sales of investment securities	65	2,988	612
Purchase of property, plant and equipment	(13,768)	(12,394)	(129,557)
Payments for retirement of property, plant and equipment	(405)	(477)	(3,811)
Purchase of intangible assets	(585)	(1,091)	(5,505)
Net decrease (increase) in short-term loans receivable	546	(12)	5,138
Purchase of long-term prepaid expenses	(67)	(834)	(630)
Other	(270)	(542)	(2,541)
Net cash provided by (used in) investing activities	(15,244)	(13,152)	(143,446)
<b>Cash flows from financing activities</b>			
Net increase (decrease) in short-term loans payable	501	220	4,714
Proceeds from long-term loans payable	420	550	3,952
Repayments of long-term loans payable	(3,070)	(3,060)	(28,889)
Cash dividends paid	(9,063)	(7,680)	(85,283)
Dividends paid to non-controlling interests	(39)	(52)	(367)
Share repurchase	(9,002)	(9,002)	(84,709)
Other	(14)	(17)	(132)
Net cash provided by (used in) financing activities	(20,268)	(19,042)	(190,722)
<b>Effect of exchange rate change on cash and cash equivalents</b>	(177)	94	(1,666)
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>2,000</b>	<b>390</b>	<b>18,820</b>
<b>Cash and cash equivalents at the beginning of period</b>	<b>35,701</b>	<b>35,335</b>	<b>335,946</b>
<b>Decrease in cash and cash equivalents resulting from exclusion of subsidiaries from consolidation</b>	<b>—</b>	<b>(25)</b>	<b>—</b>
<b>Cash and cash equivalents at end of period</b>	<b>¥37,702</b>	<b>¥35,701</b>	<b>\$354,776</b>

# Notes to Consolidated Financial Statements

## 1. Basis for presenting Consolidated 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, the related accounting regulations, and the accounting principles generally accepted in Japan (“J-GAAP”), which differ in certain aspects from the application and disclosure requirements of the accounting principles generally accepted in the United States of America (“US-GAAP”) and International Financial Reporting Standards (“IFRS”).

In preparing these consolidated financial statements, certain reclassification and rearrangements have been made to the consolidated financial statements issued in Japan in order to present them in a form that is more familiar to readers in other countries.

## 2. Summary of Significant Accounting Policies

### a. Consolidation

The consolidated financial statements as of March 31, 2018 include the account of Nissan Chemical Industries, Ltd. (the “Company”) and its eight main (eight in FY2016) subsidiaries (together, the “Companies”). The Company does not consolidate other subsidiaries due to their immateriality in terms of consolidated total assets, net sales, net income, and retained earnings.

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

Investments in two affiliated companies (two in FY2016) are accounted for by the equity method.

The assets and liabilities of the newly consolidated subsidiaries are stated at fair value as of the respective dates on which they were acquired.

All significant inter-company balances and transactions have been eliminated in consolidation.

All material unrealized profits included in assets resulting from transactions within the Companies are eliminated.

### b. Securities

The Company’s marketable securities are reported at fair value. Unrealized holding gains and losses, net of the related tax effect, on marketable securities are excluded from earnings. Instead, they are reported as a separate component of other comprehensive income until realized. Realized gains and losses for securities are included in earnings, and are derived using the moving average method for determining the cost of securities sold.

Non-marketable securities in companies over which the Company is incapable of exercising significant influence are stated at cost and reviewed periodically for impairment.

### c. Inventories

Inventories are stated at the lower of cost or net realizable value. The cost is determined by the average method.

### d. Property, Plant and Equipment (excluding Leased Assets)

Property, plant and equipment are stated at cost. In general, the depreciation of property, plant and equipment is computed by the declining-balance method over the estimated useful lives of these assets.

The estimated useful life ranges are two years to fifty years for buildings and structures, and two years to twelve years for machinery and equipment.

### e. Goodwill and other Intangible Assets

Goodwill is amortized by the straight-line method within 20 years. Other intangible assets are also amortized the using straight-line method.

The most typical intangible asset is Software, and its useful life is five years.

### f. Leased Assets

Leased assets arising from finance lease transactions which do not transfer ownership to the lessee are depreciated to a residual value of zero by the straight-line method, using the contract term as the useful life.

### g. Allowance for Doubtful Accounts

The allowance for doubtful accounts is the Companies’ best estimate for the amount of probable credit losses in the Companies’ existing trade receivables.

An additional reserve for individual receivable is recorded when the Companies’ become aware of a customer’s inability to meet its financial obligations, such as when a customer files for bankruptcy or when its operating results or financial position deteriorates.

If the customer’s circumstances change, estimates of the recoverability of receivables are further adjusted.

### h. Provision for Bonuses

The Companies provide accrued bonuses for employees based on the estimated amounts to be paid for the fiscal year.

### i. Provision for Directors’ Bonuses

The Companies provide accrued bonuses for members of the Board of Directors based on the estimated amounts to be paid for the fiscal year.

### j. Provision for Business Structure Improvement

The Company provides a reserve at the estimated amount to cover the expenses and losses to be incurred in association with structural improvement.

### k. Provision for Loss on Business of Subsidiaries and Affiliates

The Company provides a reserve at the estimated amount to cover the losses on business of subsidiaries and affiliates in consideration of their financial position.

### I. Provision for Retirement Benefits

The Company has a defined benefit plan and a retirement plan that substantially covers all of its employees.

The method for calculating the estimated amount of all retirement benefits to be paid at future retirement dates is based on the benefit formula.

Actuarial gains and losses are primarily amortized using the declining-balance method over the average of the estimated remaining service years (16 years) commencing from the period which the gains and losses occurred.

Certain consolidated subsidiaries use a simplified method for calculating retirement benefits.

In this method, the retirement benefit obligation is the same amount as the necessary payment related to retirement benefits.

### m. Translation of Foreign Currency

The assets and liabilities of the Company's subsidiaries located outside Japan are translated into Japanese yen at the exchange rate in effect on the balance sheet date. Revenue and expense items are translated at the prevailing average exchange rates for the year. Gains and losses resulting from foreign currency transactions are included in other income (deductions), and those resulting from the translation of financial statements are excluded from the statements of income. Instead, they are accumulated in net assets as a component of accumulated other comprehensive income (loss).

### n. Derivatives and Hedge Accounting

The Company enters into interest rate swap contracts to hedge the risk of changes in interest rates over borrowings.

Derivatives are carried at fair value with all changes in unrealized gains and losses charged to income, except for those which meet the criteria for deferral hedge accounting under which unrealized gains or losses, net of the applicable income taxes, are reported as components of accumulated other comprehensive income (loss).

If interest rates swap contracts meet certain criteria, the net amount to be paid or received under the interest rate swap contract is added to or deducted from the interest on the assets or liabilities for which the swap contract is executed.

### o. Cash and Cash Equivalent

The Companies consider cash equivalents include all highly fluid investments, which have been purchased with original maturities of three months or less.

### 3. U.S. dollar Amounts

The accompanying consolidated financial statements are expressed in Japanese yen as of and for the year ended March 31, 2018 after being converted from the currency of the country in which the Company operates. The translation of Japanese yen amounts to United States dollar amounts is included solely for the convenience of the readers outside Japan, and has been made at the rate of ¥106.27 to US \$1, which is the approximate closing exchange rate reported by the Tokyo Foreign Exchange Market on March 31, 2018. This translation should not be construed to indicate that the Japanese yen amounts shown can be converted to United States dollars at the above rate.

### 4. Unapplied Accounting Standards

Accounting Standards Board of Japan released "Accounting Standard for Revenue Recognition" and "Implementation Guidance on Accounting Standard for Revenue Recognition" on March 30, 2018.

The Companies have not applied the above standard and guidance for the current consolidated fiscal year.

The applying timing is under consideration.

The impact on consolidated financial statements is under evaluation as well.

### 5. Collateral Assets and Liabilities

Collateral assets and liabilities as of FY2017 and FY2016 were as follows:

	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
Investment securities	¥122	¥ 97	\$1,148
Accounts payable	¥340	¥253	\$3,199
Accrued expenses	¥ —	¥ 0	\$ —

### 6. Research and Development Expenses

Research and development expenses included in selling, general and administrative expenses for FY2017 and FY2016 were as follows:

	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
	¥17,228	¥16,078	\$162,115

## 7. Comprehensive Income

	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
<b>Valuation difference on available-for-sale securities:</b>			
Gains (losses) arising during the year	¥5,200	¥(582)	\$48,932
Reclassification adjustment	(29)	(47)	(273)
Amount before tax effect	5,170	(629)	48,650
Tax effect	(1,595)	192	(15,009)
Valuation difference on available-for-sale securities, net of tax	3,575	(436)	33,641
<b>Foreign currency translation adjustment:</b>			
Gains (losses) arising during the year	(124)	188	(1,167)
Reclassification adjustment	—	—	—
Amount before tax effect	(124)	188	(1,167)
Tax effect	—	—	—
Foreign currency translation adjustment, net of tax	(124)	188	(1,167)
<b>Remeasurements of defined benefit plans:</b>			
Gains (losses) arising during the year	88	(144)	828
Reclassification adjustment	(73)	(107)	(687)
Amount before tax effect	15	(252)	141
Tax effect	(4)	77	(38)
Remeasurements of defined benefit plans, net of tax	10	(174)	94
<b>Share of other comprehensive income of affiliates accounted for using equity methods</b>			
Gains (losses) arising during the year	(1)	1	(9)
Total other comprehensive income	¥3,460	¥(420)	\$32,559

## 8. Common Shares

### (1) Dividends

Cash dividends charged to retained earnings for the years ended March 31, 2018 and 2017 represent the dividends paid out during those years. The accompanying consolidated financial statements do not include any provisions for a dividend approved by the Annual Shareholders Meeting of 36 yen per share with an aggregate 5,380 million yen for the year ended March 31, 2018.

### (2) Retained Earnings

Retained earnings on a consolidated basis consist of legal reserve and retained earnings. In accordance with provisions of the Companies Act of Japan, the Company has provided a legal reserve as an appropriation of retained earnings. The Code states that while neither legal capital surplus nor legal retained earnings are available for dividends, both may be used to reduce or eliminate a deficit by a resolution of the shareholders' meeting, or may be transferred to stated capital common stock by a resolution of the Board of Directors. Legal reserve in the accompanying consolidated financial statement includes only that of the Company. Retained earnings of the Company and its consolidated subsidiaries include a certain special reserve for the purpose of obtaining tax benefits in accordance with the Special Taxation Law of Japan.

## 9. Investment Securities

	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
Equity securities	¥30,022	¥24,031	\$282,507
Unlisted securities of affiliates	6,812	6,636	64,101
Unlisted securities	1,682	1,797	15,828
	¥38,517	¥32,465	\$362,445

## 10. Short-term Debt and Long-term Debt

Short-term debt consisting of an unsecured bank overdraft as of March 31, 2018 was 23,591 million yen.

The weighted average interest rate on short-term debt outstanding as of March 31, 2018 was 0.56%.

The weighted average interest rate on long-term debt outstanding as of March 31, 2018 was 0.77%.

The weighted average interest rate on the current portion of long-term debt outstanding as of March 31, 2018 was 0.89%.

Long-term debt as of FY2017 and FY2016 were as follows:

	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
Long-term debt	¥5,000	¥7,650	\$47,050
Less current portion	(2,554)	(3,070)	(24,033)
	¥2,446	¥4,580	\$23,017

Long-term debt payments due after FY2018 were as follows:

Year ending March 31	(Millions of Yen)	(Thousands of U.S. dollars)
FY2019	¥1,754	\$16,505
FY2020	414	3,896
FY2021	194	1,826
FY2022 and thereafter	84	790
	¥2,446	\$23,017

## 11. Retirement Benefits

(1) The liability for retirement benefits as of FY2017 and FY2016 were as follows:

	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
Retirement benefit obligation	¥12,156	¥12,031	\$114,388
Plan asset	(14,349)	(14,018)	(135,024)
	(2,193)	(1,987)	(20,636)
Unfunded retirement benefit obligation	126	101	1,186
Net retirement benefit obligation	(2,067)	(1,885)	(19,450)
Net defined benefit liability	126	101	1,186
Net defined benefit asset	(2,193)	(1,987)	(20,636)
Net retirement benefit obligation	¥ (2,067)	¥ (1,885)	\$ (19,450)

(2) Actuarial assumptions

The principal actuarial assumptions as of FY2017 and FY2016 were as follows:

	FY2017	FY2016
Discount rate	0.8%	0.8%
Long-term expected rate of return	2.0%	2.0%
Expected rate of salary increase (forecast)	3.6 to 9.0%	3.6 to 9.0%

(Note) Expected rate of salary increase is calculated based on our point system.

## 12. Income Taxes

The Company is subject to a number of taxes based on income. The statutory income tax rates were approximately 30.86% for the year ended March 31, 2018 and 30.86% for the year ended March 31, 2017.

The tax effects on significant temporary differences which resulted in deferred tax assets and liabilities as of FY2017 and FY2016 were as follows:

	(Millions of Yen)		(Thousands of U.S. dollars)
	FY2017	FY2016	FY2017
Deferred tax assets:			
Tax effect on investment in subsidiary to be liquidated	¥ 1,124	¥1,124	\$ 10,577
Inventory	672	746	6,324
Provision for bonuses	620	589	5,834
Prepaid consignment research expenses	541	369	5,091
Unrealized profit of inventories	407	384	3,830
Other	2,555	2,441	24,043
Gross deferred tax assets	5,921	5,656	55,717
Less: Valuation allowance	(49)	(49)	(461)
Total deferred tax assets	5,871	5,606	55,246
Deferred tax liabilities:			
Unrealized gain on securities	(6,107)	(4,477)	(57,467)
Net defined benefit asset	(645)	(596)	(6,069)
Reserve for advanced depreciation of non-current assets	(268)	(276)	(2,522)
Other	(57)	(72)	(536)
Total deferred tax liabilities	(7,078)	(5,422)	(66,604)
Net deferred tax assets	¥(1,206)	¥ 184	\$ (11,348)

The differences between the statutory tax rate and the effective tax rate for the years ended FY2017 and FY2016 were as follows:

	FY2017	FY2016
Statutory tax rate	30.86%	30.86%
(Reconciliation)		
Elimination of intercompany dividend income	2.51%	2.69%
Entertainment and other permanently non-deductible expense	0.41	0.46
Difference of tax rate for foreign consolidated subsidiaries	(0.47)	(0.65)
Equity in earnings of affiliates	(1.13)	(0.68)
Dividend and other items excluded permanently from taxable income	(2.64)	(2.80)
Tax credit	(5.26)	(6.20)
Other, net	0.37	0.04
Effective tax rate	24.65%	23.72%



### 13. Segment Information

#### (1) General Information about reportable segments

In regard to reportable segments, the Company is able to obtain discrete financial data from its component units.

Accordingly, its segments are subject to regular review to help the Board of Directors decide how to allocate managerial resources and evaluate business performance.

Divisions by products and services are located at headquarters. Each division works out a comprehensive strategy applicable to their products and services and carries out their business activities.

The Company consists of segments based on the following divisions:

Segment	Main Products
Chemicals	Basic chemicals (melamine, sulfuric acid, nitric acid, ammonia, etc.) Fine chemicals (epoxy compound for LED sealants, solder resist and painting, flame retardants, chlorinated cyanuric acid for sterilizing, etc.)
Performance Materials	Display materials (LCD alignment coating, etc.) Semiconductor materials (bottom anti-reflective coating for semiconductors, etc.) Inorganic materials (hard coating materials, electronic information materials, polishing materials, etc.)
Agricultural Chemicals	Agrochemicals (herbicides, insecticides, fungicides, combination fungicide and insecticide, and plant growth regulators) Animal health products
Pharmaceuticals	LIVALO® (anti-cholesterol drugs), etc. Finetech® (custom manufacturing and process researching services for pharmaceutical companies)
Trading	Trading, etc.
Others	Transportation, landscaping, engineering, fertilizer, etc.

#### (2) Basis for the measurement of reported segment income or loss, segment assets, and other material items

The accounting policies for the reportable segments are consistent with the Company's accounting policies used in the preparation of its consolidated financial statements.

Intersegment sales and income (loss) are recognized based on current market prices.

#### (3) Information on sales, income (loss), assets, and other item amounts by reportable segment

FY2016	Millions of Yen							Consolidated Total
	Chemicals	Performance Materials	Agricultural Chemicals	Pharmaceuticals	Trading	Others	Adjustment (Note)	
Net sales								
Sales to outside customers	¥25,723	¥46,403	¥47,791	¥ 7,966	¥42,281	¥10,108	¥ 14	¥180,289
Intersegment sales	9,057	6,406	4,160	26	12,916	13,921	(46,489)	—
Total sales	34,780	52,809	51,952	7,992	55,198	24,029	(46,474)	180,289
Segment income (loss)	3,820	12,533	13,201	1,656	1,697	966	(2,437)	31,438
Segment assets	26,113	48,028	55,588	10,182	19,782	10,731	61,322	231,748
Other items								
Depreciation and amortization	1,613	4,763	1,336	705	59	330	79	8,887
Amortization of goodwill	—	—	—	—	2	—	—	2
Increase of property, plant and equipment, and intangible assets	¥ 2,000	¥ 8,404	¥ 2,416	¥ 903	¥ 46	¥ 299	¥ 229	¥ 14,299

Notes: The adjustments are as follows:

(1) The (2,437) million yen adjustment in segment income includes (285) million yen in intersegment eliminations, 14 million yen sales not attributable to any reporting segment, and (2,165) million yen corporate expenses not attributable to any reportable segment.

The corporate expenses are mainly group administrative expenses which do not belong to segments.

(2) The 61,322 million yen adjustment in segment assets includes (9,338) million yen in intersegment eliminations and 70,660 million yen in corporate assets not attributable to any reportable segment. The corporate assets are mainly group administrative assets which do not belong to segments.

(3) The 79 million yen adjustment in depreciation and amortization is corporate expenses.

(4) The 229 million yen adjustment in increase of property, plant and equipment and intangible assets is corporate assets. The corporate assets are mainly group administrative assets which do not belong to segments.

FY2017	Millions of Yen							Adjustment (Note)	Consolidated Total
	Chemicals	Performance Materials	Agricultural Chemicals	Pharmaceuticals	Trading	Others			
Net sales									
Sales to outside customers	¥25,546	¥51,973	¥54,262	¥7,493	¥44,474	¥ 9,638	¥ —	¥193,389	
Intersegment sales	9,390	6,789	3,876	26	15,012	11,822	(46,917)	—	
Total sales	34,937	58,762	58,138	7,520	59,486	21,461	(46,917)	193,389	
Segment income (loss)	3,410	14,200	16,370	1,233	1,826	612	(2,665)	34,988	
Segment assets	26,976	52,938	56,571	9,118	23,393	9,658	70,387	249,043	
Other items									
Depreciation and amortization	1,733	5,925	1,416	713	52	319	347	10,508	
Amortization of goodwill	1	—	—	—	—	—	—	1	
Increase of property, plant and equipment, and intangible assets	¥ 2,594	¥ 7,209	¥ 2,541	¥ 679	¥ 23	¥ 304	¥ 341	¥ 13,694	

Notes: The adjustments are as follows:

- (1) The (2,665) million yen adjustment in segment income includes (254) million yen in intersegment eliminations, and (2,410) million yen corporate expenses not attributable to any reportable segment. The corporate expenses are mainly group administrative expenses which do not belong to segments.
- (2) The 70,387 million yen adjustment in segment assets includes (8,200) million yen in intersegment eliminations and 78,588 million yen in corporate assets not attributable to any reportable segment. The corporate assets are mainly group administrative assets which do not belong to segments.
- (3) The 347 million yen adjustment in depreciation and amortization is corporate expenses.
- (4) The 341 million yen adjustment in increase of property, plant and equipment and intangible assets is corporate assets. The corporate assets are mainly group administrative assets which do not belong to segments.

FY2017	Thousands of U.S. dollars							Adjustment (Note)	Consolidated Total
	Chemicals	Performance Materials	Agricultural Chemicals	Pharmaceuticals	Trading	Others			
Net sales									
Sales to outside customers	\$240,388	\$489,066	\$510,605	\$70,509	\$418,500	\$ 90,694	\$ —	\$1,819,789	
Intersegment sales	88,360	63,884	36,473	245	141,263	111,245	(441,489)	—	
Total sales	328,757	552,950	547,078	70,763	559,763	201,948	(441,489)	1,819,789	
Segment income (loss)	32,088	133,622	154,042	11,603	17,183	5,759	(25,078)	329,237	
Segment assets	253,844	498,146	532,333	85,800	220,128	90,882	662,341	2,343,493	
Other items									
Depreciation and amortization	16,308	55,754	13,325	6,709	489	3,002	3,265	98,880	
Amortization of goodwill	9	—	—	—	—	—	—	9	
Increase of property, plant and equipment, and intangible assets	\$ 24,410	\$ 67,837	\$ 23,911	\$ 6,389	\$ 216	\$ 2,861	\$ 3,209	\$ 128,860	

Overseas operations, which represent sales to customers outside Japan for FY2017 and FY2016 were as follows:

FY2016	Millions of Yen				
	Japan	Korea	Other Asia	Europe and the United States	Consolidated Total
Net sales	¥103,077	¥ 15,513	¥ 39,286	¥ 22,412	¥ 180,289
FY2017	Millions of Yen				
	Japan	Korea	Other Asia	Europe and the United States	Consolidated Total
Net sales	¥104,523	¥ 20,218	¥ 39,339	¥ 29,308	¥ 193,389
FY2017	Thousands of U.S. dollars				
	Japan	Korea	Other Asia	Europe and the United States	Consolidated Total
Net sales	\$983,561	\$190,251	\$370,180	\$275,788	\$1,819,789

#### 14. Amounts per Share

Net income per share is based on the weighted average number of shares of common stock outstanding during the year.

Cash dividends per share attributable to the period represent dividends declared as applicable to the year.

Amounts per share of net income and cash dividends for FY2017 and FY2016 were as follows:

	(Yen)		(U.S. dollars)
	FY2017	FY2016	FY2017
Net income	¥180.30	¥156.97	\$1.70
Cash dividends	¥ 68.00	¥ 52.00	\$0.64

# Independent Auditor's Report

## Independent Auditor's Report

To the Board of Directors of  
Nissan Chemical Industries, Ltd.

We have audited the accompanying consolidated financial statements of Nissan Chemical Industries, Ltd. and consolidated subsidiaries, which comprise the consolidated balance sheets as of March 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, all expressed in Japanese Yen.

### **Management's Responsibility for the Consolidated Financial Statements**

Management is responsible for the preparation and fair presentation of these consolidated financial statements in conformity 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 misstatements, 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 conformity 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 our 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, we consider 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 Nissan Chemical Industries, Ltd. and its consolidated subsidiaries as of March 31, 2018, and the consolidated results of their operations and their cash flows for the year then ended in conformity with accounting principles generally accepted in Japan.

### **Convenience Translation**

The U.S. dollar amounts in the accompanying consolidated financial statements with respect to the year ended March 31, 2018 are presented solely for convenience. Our audit also included the translation of yen amounts into U.S. dollar amounts and, in our opinion, such translation has been made on the basis described in Note 3 to the consolidated financial statements.

Yaesu Audit & Co.  
Tokyo, Japan  
June 27, 2018



As the audit is for the fiscal year from April 1, 2017 to March 31, 2018, the above report does not reflect the company name change on July 1, 2018.

## Domestic and Overseas Bases

### ● Domestic Production Bases

#### Nagoya Plant

This plant faces the Port of Nagoya. Here we manufacture sulfuric acid and high-quality urea aqueous solution, among other products.



#### Toyama Plant

This plant is located in the center of Toyama Plain. Here we manufacture various groups of products, such as basic chemicals, environmental chemicals, and performance materials.



#### Onoda Plant

This plant is located in Sanyo-Onoda City, Yamaguchi. It is our base for the production of fine organic synthetic compounds, such as agrochemicals and pharmaceuticals.



#### Saitama Plant

This plant is located in northern Saitama. Here we manufacture agricultural formulations.



#### Sodegaura Plant, Sodegaura Plant Goi Works

These plants are located in the industrial area in Sodegaura and Ichihara City, Chiba. These are our bases for the production of performance materials.



## List of Offices, Plants and Laboratories

### Offices

#### Head Office

5-1, Nihonbashi 2-Chome, Chuo-ku, Tokyo 103-6119  
Tel: +81-3-4463-8111

#### Sendai Sales Office

Greenwood Sendai Ichibancho Building 2-7-12, Ichibancho, Aoba-ku, Sendai 980-0811  
Tel: +81-22-266-4311

#### Osaka Sales Office

Osaka Daiichi Seimei Building 1-8-17, Umeda, Kita-ku, Osaka 530-0001  
Tel: +81-6-6346-7200

#### Sapporo Sales Office

Maruito Sapporo Building 1-1, Kita-Nijyo-Nishi, Chuo-ku, Sapporo 060-0002  
Tel: +81-11-251-0261

#### Nagoya Sales Office

Nagoya KS Building 3-1-18, Taiko, Nakamura-ku, Nagoya 453-0801  
Tel: +81-52-452-8623

#### Fukuoka Sales Office

JPR Hakata Building 1-4-4, Hakata Ekimae, Hakata-ku, Fukuoka 812-0011  
Tel: +81-92-432-3421

### Plants

#### Sodegaura Plant

11-1, Kitasode, Sodegaura, Chiba 299-0266  
Tel: +81-438-63-2341

#### Saitama Plant

235-1, Aza Nishidai, Oaza Jimbohara-machi, Kamisato-machi, Kodama-gun, Saitama 369-0305  
Tel: +81-495-34-2810

#### Nagoya Plant

7, Tsukiji-cho, Minato-ku, Nagoya 455-0045  
Tel: +81-52-661-1676

#### Sodegaura Plant Goi Works

12-17, Goiminamikaigan, Ichihara, Chiba 290-0045  
Tel: +81-436-22-2110

#### Toyama Plant

635, Sasakura, Fuchu-machi, Toyama 939-2792  
Tel: +81-76-433-9602

#### Onoda Plant

6903-1, Oaza Onoda, Sanyo-Onoda, Yamaguchi 756-0093  
Tel: +81-836-83-2800

### Laboratories

#### Chemical Research Laboratories

10-1, Tsuboi-Nishi 2-chome, Funabashi, Chiba 274-8507  
Tel: +81-47-465-1112

#### Biological Research Laboratories

1470, Shiraoka, Shiraoka, Saitama 349-0294  
Tel: +81-480-92-2513

#### Materials Research Laboratories

488-6, Suzumi-cho, Funabashi, Chiba 274-0052  
Tel: +81-47-419-3810

11-1, Kitasode, Sodegaura, Chiba 299-0266  
Tel: +81-438-64-2881

635, Sasakura, Fuchu-machi, Toyama 939-2792  
Tel: +81-76-465-7133

## Nissan Chemical Group

### Japan

#### Nissei Corporation

1-10-5, Nihonbashihon-cho, Chuo-ku, Tokyo 103-0023  
Tel: +81-3-3241-2548  
■ Sales of chemical products and insurance, and real estate business

#### Nissan Green & Landscape Co., Ltd.

3-16-9, Uchikanda, Chiyoda-ku, Tokyo 101-0047  
Tel: +81-3-3256-4031  
■ Landscaping and civil engineering

#### Nihon Hiryo Co., Ltd.

1-10-5, Nihonbashihon-cho, Chuo-ku, Tokyo 103-0023  
Tel: +81-3-3241-4231  
■ Fertilizers and agrochemicals

#### Sun Agro Co., Ltd.

1-10-5, Nihonbashihon-cho, Chuo-ku, Tokyo 103-0023  
Tel: +81-3-3510-3601  
■ Fertilizers and agrochemicals

#### Nissan Butsuryu Co., Ltd.

1-10-5, Nihonbashihon-cho, Chuo-ku, Tokyo 103-0023  
Tel: +81-3-5255-6901  
■ Transportation

#### Nissan Engineering, Ltd.

634-1, Sasakura, Fuchu-machi, Toyama 939-2753  
Tel: +81-76-465-5711  
■ Plant engineering services

#### Environmental Technical Laboratories, Ltd.

2-11-7, Kohoku, Adachi-ku, Tokyo 123-0872  
Tel: +81-3-3898-6643  
■ Environmental analysis

#### Clariant Catalysts (Japan) K.K.

2-28-8, Honkomagome, Bunkyo-ku, Tokyo 113-0021  
Tel: +81-3-5977-7300  
■ Catalysts for petrochemical and petroleum products

## Domestic and Overseas Bases

### Overseas Bases (As of July 1, 2018)

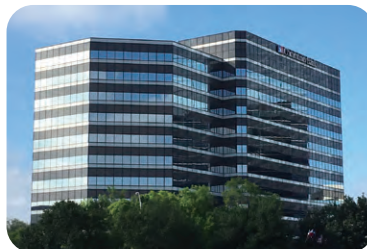
#### France



#### Nissan Chemical Europe S.A.S.

Parc d'Affaires de Crécy - 10A rue de la Voie Lactée  
69370 Saint Didier au Mont d'Or, France  
Tel: +33-4-37-64-40-20  
■ Sales of agrochemicals

#### America



#### Nissan Chemical America Corporation

10333 Richmond Avenue, Suite 1100, Houston,  
Texas 77042, U.S.A.  
Tel: +1-713-532-4745  
■ Production and sales of inorganic materials

#### India

#### Nissan Agro Tech India PVT. LTD.

502-504, 5th Floor, Tower B, Spazedge  
Commercial Complex, Sector-47, Sohna Road,  
Gurgaon-122002, Haryana, India  
Tel: +91-124-4214446 / 47  
■ Sales support and promotional services for agrochemicals

#### China

#### Nissan Chemical Product (Shanghai) Co., Ltd.

Room 1110A, New Town Center,  
83, Lou Shan Guan Road, Shanghai, China  
Tel: +86-21-6236-8300  
■ Sales support and promotional services for agrochemicals

#### Nissan Chemical Materials Research (Suzhou) Co., Ltd.

Room101, NW-10, Nanopolis Suzhou 99 Jinji Lake Avenue,  
Suzhou Industrial Park, China  
Tel: +86-512-62732080  
■ R&D, sales support and promotional services for performance materials

#### Taiwan

#### Nissan Chemical Taiwan Co., Ltd.

5F., No.67, Luke 2nd Rd., Luzhu Dist., Kaohsiung City 821,  
Taiwan (R.O.C.)  
Tel: +886-7-695-5252  
■ R&D and sales support for display and semiconductor materials

#### Brazil

#### Nissan Chemical Do Brasil

Avenida Gisele Constantino, 1850,  
Salas 1518 a 1520, Parque Bela Vista,  
Votorantim, SP, 18110-650, Brasil  
Tel: +55-15-3019-8772  
■ Sales support and promotional services for agrochemicals

#### Korea



#### NCK Co., Ltd.

127, Chupalsandan-ro, Paengseong-eup, Pyeongtaek-si,  
Gyeonggi-do, 17998, KOREA  
Tel: +82-31-691-7044  
■ Production and sales of display and semiconductor materials

#### Nissan Chemical Agro Korea Ltd.

Room 2001, 74, Sejong-daero, Jung-gu,  
Seoul 04526, Korea  
Tel: +82-2-774-6470  
■ Sales of agrochemicals

# Corporate Profile

(As of July 1, 2018)

Corporate Name	Nissan Chemical Corporation
Head Office	5-1, Nihonbashi 2-Chome, Chuo-ku, Tokyo 103-6119, Japan Tel: +81-3-4463-8111
Founded	1887
Capital Stock	18,942 million yen
Number of Employees	Consolidated: 2,511 (As of March 31, 2018)
Stock Listing	Tokyo Stock Exchange
Transfer Agent	Sumitomo Mitsui Trust Bank, Limited 4-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-8233, Japan

## Share Information

(As of March 31, 2018)

Total Number of Authorized Shares	360,000,000
Shares of Common Share Issued	151,000,000
Shareholders	11,189

Major shareholders (Top ten companies)	Number of shares held (1,000 shares)	Investment (%)
The Master Trust Bank of Japan, Ltd. (Trust Account)	23,117	15.5
Japan Trustee Services Bank, Ltd. (Trust Account)	10,528	7.0
Trust & Custody Services Bank, Ltd. as trustee for the Mizuho Trust & Banking Co., Ltd. Retirement Benefit Trust	7,516	5.0
The Norinchukin Bank	4,800	3.2
Nissan Chemical Customer Shareholders Association	3,998	2.7
Trust & Custody Services Bank, Ltd. (Securities Investment Trust Account)	2,905	1.9
Sompo Japan Nipponkoa Insurance Inc.	2,380	1.6
Ono Pharmaceutical Co., Ltd.	2,376	1.6
Japan Trustee Services Bank, Ltd. (Trust Account 5)	2,329	1.6
STATE STREET BANK WEST CLIENT – TREATY 505234	2,184	1.5

(Note) Investment percentages are calculated excluding treasury shares.

	Financial institutions	Securities companies	Other domestic companies	Overseas investors	Individuals / Others	Treasury shares
Percentage of share held (%)	49.4	1.7	11.2	25.4	11.3	1.0

# GRI Content Index

This refers to information related to items of GRI Standard as a reference, but does not indicate that this report is in accordance with GRI Standard. "Not Applicable" indicates that the corresponding items are not relevant or have no cases relevant to any critical levels. "–" indicates no information.

GRI102 : General Disclosures 2016		Reference page
<b>1. Organizational profile</b>		
102-1	Name of the organization	P94 Corporate Profile
102-2	Activities, brands, products, and services	P23-26 Main Products P27-38 Business Overview
102-3	Location of headquarters	P94 Corporate Profile
102-4	Location of operations	P9-10 Non-Financial Highlights P91-93 Domestic and Overseas bases
102-5	Ownership and legal form	P94 Corporate Profile
102-6	Markets served	P7-8 Financial Highlights P27-38 Business Overview Annual securities report
102-7	Scale of the organization	P7-8 Financial Highlights P9-10 Non-Financial Highlights P75-90 Financial Section P91-93 Domestic and Overseas bases Annual securities report
102-8	Information on employees and other workers	P9-10 Non-Financial Highlights Annual securities report
102-9	Supply chain	–
102-10	Significant changes to the organization and its supply chain	P11-14 Message from the President P15-18 "Progress2030" and "Vista2021"
102-11	Precautionary Principle or approach	P49-64 Responsible Care (RC) Activities
102-12	External initiatives	P11-14 Message from the President P44 Promotion of CSR P49-52 Responsible Care Management
102-13	Membership of associations	P11-14 Message from the President P49-52 Responsible Care Management P59-60 Biodiversity Conservation P63-64 Chemicals and Products Safety
<b>2. Strategy</b>		
102-14	Statement from senior decision-maker	P11-14 Message from the President
102-15	Key impacts, risks, and opportunities	P19-20 Identified Materiality P21-22 Process of Value Creation P47-48 Risk Management
<b>3. Ethics and integrity</b>		
102-16	Values, principles, standards, and norms of behavior	P2 Corporate Ethos Structure P11-14 Message from the President P45-46 Compliance
102-17	Mechanisms for advice and concerns about ethics	P39-43 Corporate Governance P45-46 Compliance Corporate governance report
<b>4. Governance</b>		
102-18	Governance structure	P39-43 Corporate Governance P44 Promotion of CSR
102-19	Delegating authority	Corporate governance report
102-20	Executive-level responsibility for economic, environmental, and social topics	P39-43 Corporate Governance P44 Promotion of CSR Corporate governance report
102-21	Consulting stakeholders on economic, environmental, and social topics	P68 Relationships with Shareholders and Investors Corporate governance report
102-22	Composition of the highest governance body and its committees	P39-43 Corporate Governance P44 Promotion of CSR Corporate governance report
102-23	Chair of the highest governance body	Corporate governance report
102-24	Nominating and selecting the highest governance body	P39-43 Corporate Governance Corporate governance report
102-25	Conflicts of interest	Corporate governance report
102-26	Role of highest governance body in setting purpose, values, and strategy	P39-43 Corporate Governance Corporate governance report
102-27	Collective knowledge of highest governance body	Corporate governance report
102-28	Evaluating the highest governance body's performance	P39-43 Corporate Governance Corporate governance report
102-29	Identifying and managing economic, environmental, and social impacts	P19-20 Identified Materiality P21-22 Process of Value Creation P39-43 Corporate Governance P45-46 Compliance P47-48 Risk Management P49-52 Responsible Care Management Corporate governance report
102-30	Effectiveness of risk management processes	P47-48 Risk Management Corporate governance report



102-31	Review of economic, environmental, and social topics	P44 Promotion of CSR P47-48 Risk Management P49-52 Responsible Care Management Corporate governance report
102-32	Highest governance body's role in sustainability reporting	—
102-33	Communicating critical concerns	P45-46 Compliance P47-48 Risk Management Corporate governance report
102-34	Nature and total number of critical concerns	P45-46 Compliance P47-48 Risk Management
102-35	Remuneration policies	P39-43 Corporate Governance Corporate governance report
102-36	Process for determining remuneration	P39-43 Corporate Governance Corporate governance report
102-37	Stakeholders' involvement in remuneration	P39-43 Corporate Governance Corporate governance report
102-38	Annual total compensation ratio	—
102-39	Percentage increase in annual total compensation ratio	—
<b>5. Stakeholder engagement</b>		
102-40	List of stakeholder groups	P65-74 Communication with Society
102-41	Collective bargaining agreements	P71-74 Relationships with Employees
102-42	Identifying and selecting stakeholders	P65-74 Communication with Society
102-43	Approach to stakeholder engagement	P65-74 Communication with Society
102-44	Key topics and concerns raised	P59-60 Biodiversity Conservation
<b>6. Reporting practice</b>		
102-45	Entities included in the consolidated financial statements	P3 Editorial Policy Annual securities report
102-46	Defining report content and topic Boundaries	P3 Editorial Policy
102-47	List of material topics	P19-20 Identified Materiality
102-48	Restatements of information	—
102-49	Changes in reporting	P19-20 Identified Materiality
102-50	Reporting period	P3 Editorial Policy
102-51	Date of most recent report	P3 Editorial Policy
102-52	Reporting cycle	P3 Editorial Policy
102-53	Contact point for questions regarding the report	P3 Editorial Policy
102-54	Claims of reporting in accordance with the GRI Standards	—
102-55	GRI content index	P95-98 GRI Content Index
102-56	External assurance	—
<b>GRI103 : Management approach 2016</b>		
103-1	Explanation of the material topic and its Boundary	P19-20 Identified Materiality
103-2	The management approach and its components	P19-20 Identified Materiality P21-22 Process of Value Creation P27-38 Business Overview P39-43 Corporate Governance P44 Promotion of CSR P45-46 Compliance P47-48 Risk Management P49-64 Responsible Care (RC) Activities P65-66 Relationships with Customers P67 Relationships with Business Partners P71-74 Relationships with Employees
103-3	Evaluation of the management approach	P39-43 Corporate Governance P44 Promotion of CSR P45-46 Compliance P47-48 Risk Management P49-52 Responsible Care Management P65-66 Relationships with Customers

## Economic

<b>GRI201 : Economic Performance 2016</b>		Reference page
201-1	Direct economic value generated and distributed	Annual securities report
201-2	Financial implications and other risks and opportunities due to climate change	—
201-3	Defined benefit plan obligations and other retirement plans	Annual securities report
201-4	Financial assistance received from government	—
<b>GRI202 : Market Presence 2016</b>		
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	—
202-2	Proportion of senior management hired from the local community	—
<b>GRI203 : Indirect Economic Impacts 2016</b>		
203-1	Infrastructure investments and services supported	P59-60 Biodiversity Conservation P69-70 Relationships with Communities and Society
203-2	Significant indirect economic impacts	—
<b>GRI204 : Procurement Practices 2016</b>		
204-1	Proportion of spending on local suppliers	—

# GRI Content Index

GRI205 : Anti-corruption 2016		
205-1	Operations assessed for risks related to corruption	—
205-2	Communication and training about anti-corruption policies and procedures	P45-46 Compliance
205-3	Confirmed incidents of corruption and actions taken	Not applicable
GRI206 : Anti-competitive Behavior		
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Not applicable

## Environmental

GRI301 : Materials 2016		Reference page
301-1	Materials used by weight or volume	P53-58 Environment Safety and Climate Change Strategy
301-2	Recycled input materials used	—
301-3	Reclaimed products and their packaging materials	—
GRI302 : Energy 2016		
302-1	Energy consumption within the organization	P53-58 Environment Safety and Climate Change Strategy
302-2	Energy consumption outside of the organization	P53-58 Environment Safety and Climate Change Strategy
302-3	Energy intensity	P53-58 Environment Safety and Climate Change Strategy
302-4	Reduction of energy consumption	P53-58 Environment Safety and Climate Change Strategy
302-5	Reductions in energy requirements of products and services	—
GRI303 : Water 2016		
303-1	Water withdrawal by source	P53-58 Environment Safety and Climate Change Strategy
303-2	Water sources significantly affected by withdrawal of water	—
303-3	Water recycled and reused	No water recycling / reuse
GRI304 : Biodiversity 2016		
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	P59-60 Biodiversity Conservation
304-2	Significant impacts of activities, products, and services on biodiversity	—
304-3	Habitats protected or restored	P59-60 Biodiversity Conservation
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	—
GRI305 : Emissions 2016		
305-1	Direct (Scope 1) GHG emissions	P53-58 Environment Safety and Climate Change Strategy
305-2	Energy indirect (Scope 2) GHG emissions	CO <sub>2</sub> emissions from energy use, CO <sub>2</sub> emissions from non-energy use
305-3	Other indirect (Scope 3) GHG emissions	P53-58 Environment Safety and Climate Change Strategy
305-4	GHG emissions intensity	P53-58 Environment Safety and Climate Change Strategy
305-5	Reduction of GHG emissions	P53-58 Environment Safety and Climate Change Strategy
305-6	Emissions of ozone-depleting substances (ODS)	—
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	P53-58 Environment Safety and Climate Change Strategy
GRI306 : Effluents and Waste 2016		
306-1	Water discharge by quality and destination	P53-58 Environment Safety and Climate Change Strategy
306-2	Waste by type and disposal method	P53-58 Environment Safety and Climate Change Strategy
306-3	Significant spills	Not applicable
306-4	Transport of hazardous waste	—
306-5	Water bodies affected by water discharges and / or runoff	—
GRI307 : Environmental Compliance 2016		
307-1	Non-compliance with environmental laws and regulations	Not applicable
GRI308 : Supplier Environmental Assessment 2016		
308-1	New suppliers that were screened using environmental criteria	—
308-2	Negative environmental impacts in the supply chain and actions taken	—

## Social

GRI401 : Employment 2016		Reference page
401-1	New employee hires and employee turnover	P9-10 Non-Financial Highlights
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	—
401-3	Parental leave	P9-10 Non-Financial Highlights
GRI402 : Labor / Management Relations 2016		
402-1	Minimum notice periods regarding operational changes	—
GRI403 : Occupational Health and Safety 2016		
403-1	Workers representation in formal joint management-worker health and safety committees	P71-74 Relationships with Employees
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	P61-62 Safety and Disaster Prevention, Occupational Safety and Health
403-3	Workers with high incidence or high risk of diseases related to their occupation	—
403-4	Health and safety topics covered in formal agreements with trade unions	P71-74 Relationships with Employees
GRI404 : Training and Education 2016		
404-1	Average hours of training per year per employee	P71-74 Relationships with Employees
404-2	Programs for upgrading employee skills and transition assistance programs	P71-74 Relationships with Employees
404-3	Percentage of employees receiving regular performance and career development reviews	P71-74 Relationships with Employees
GRI405 : Diversity and Equal Opportunity 2016		
405-1	Diversity of governance bodies and employees	P9-10 Non-Financial Highlights
405-2	Ratio of basic salary and remuneration of women to men	Basic salary does not differ between women and men.
GRI406 : Non-discrimination 2016		
406-1	Incidents of discrimination and corrective actions taken	Not applicable
GRI407 : 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	Not applicable
GRI408 : Child Labor 2016		
408-1	Operations and suppliers at significant risk for incidents of child labor	Not applicable

<b>GRI409 : Forced or Compulsory Labor 2016</b>		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Not applicable
<b>GRI410 : Security Practices 2016</b>		
410-1	Security personnel trained in human rights policies or procedures	—
<b>GRI411 : Rights of Indigenous Peoples 2016</b>		
411-1	Incidents of violations involving rights of indigenous peoples	Not applicable
<b>GRI412 : Human Rights Assessment 2016</b>		
412-1	Operations that have been subject to human rights reviews or impact assessments	—
412-2	Employee training on human rights policies or procedures	—
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	—
<b>GRI413 : Local Communities 2016</b>		
413-1	Operations with local community engagement, impact assessments, and development programs	—
413-2	Operations with significant actual and potential negative impacts on local communities	Not applicable
<b>GRI414 : Supplier Social Assessment 2016</b>		
414-1	New suppliers that were screened using social criteria	—
414-2	Negative social impacts in the supply chain and actions taken	—
<b>GRI415 : Public Policy 2016</b>		
415-1	Political contributions	—
<b>GRI416 : Customer Health and Safety 2016</b>		
416-1	Assessment of the health and safety impacts of product and service categories	P63-64 Chemicals and Products Safety
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Not applicable
<b>GRI417 : Marketing and Labeling 2016</b>		
417-1	Requirements for product and service information and labeling	—
417-2	Incidents of non-compliance concerning product and service information and labeling	P65-66 Relationships with Customers
417-3	Incidents of non-compliance concerning marketing communications	Not applicable
<b>GRI418 : Customer Privacy 2016</b>		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Not applicable
<b>GRI419 : Socioeconomic Compliance 2016</b>		
419-1	Non-compliance with laws and regulations in the social and economic area	Not applicable



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