

SHOWA DENKO
REPORT

2018

Our Vision

Showa Denko Group, under its Vision, has strived to realize “a company contributing to the sound growth of society” that contributes toward creating a society where affluence and sustainability are harmonized.

In order to be trusted and evaluated by society through the continuous improvement of the corporate value, it is important to maintain and develop appropriate relations with stakeholders such as shareholders, customers, business partners, local communities and employees.

Also, in order to realize our Vision and develop the Group sustainably, we have defined what we should do as the “Our Code of Conduct.”

We clarify this as “Our Vision” and promote the management for its realization.

We have established our slogan as a declaration to firmly “promise” our stakeholders this policy.



Our Slogan “Shaping Ideas”

Ideas, Hopes and dreams for
your happily ever after.



Imagination alone leads nowhere. Only when imagination is shaped into reality does the world begin to change.

At Showa Denko, we are committed to shaping ideas. Each one of us strives completely in all we do, believing that the dreams of humankind can be realized through the power of chemical technology.

Today, as a company, we are becoming bolder and more dynamic. Not only diligent and technology focused, we are a vital, proactive group of unique minds that emphasizes fresh thinking and new ways to apply our extraordinary technical expertise.

Closely working and partnering with leading global companies in markets around the world, we are shaping ideas that realize humanity's hopes and dreams for more abundant and happier lives.

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Editorial policies

The Showa Denko Group restructured its CSR report and annual report in 2017 to publish the Showa Denko Report as an integrated report. In this integrated report, we disclose the Group's financial as well as nonfinancial information, including descriptions of our consideration for the environment and society, governance, and medium- to long-term management strategies.

As for disclosure items, we analyzed our stakeholders' opinions and requests and covered priority topics, focusing on action policies and performance in 2017 and giving specific examples.

On our website, the online version of the report is also available with more details about the Showa Denko Group's CSR activities, including updated information and environmental and social activity reports from each plant.

Prepared by

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Report scope

Period covered by this Report

This report covers information for the period January 1 to December 31, 2017, with some information also provided for 2018.

Organization covered

"Showa Denko" as used in the text of this Report refers to Showa Denko K.K., while "Showa Denko Group" refers mainly to Showa Denko and its consolidated subsidiaries in Japan.

Publication date

August 2018 (The next publication is August 2019)

Guidelines/guidance referenced

ISO 26000: 2010
GRI Sustainability Reporting Standards 2016
Environmental Reporting Guidelines 2012 from the Ministry of the Environment of Japan
The International Integrated Reporting Framework from the International Integrated Reporting Council (IIRC)

About the media to report our CSR information

This REPORT

SHOWA DENKO REPORT 2018 (Integrated Report) (PDF)

The information comprehensively disclosed on the Web [Integrated Report] (PDF), is issued in PDF as an annual report. We take into consideration the readability, such as the layout at the time of printing, and each chapter can also be printed individually.



SHOWA DENKO REPORT 2018 (Digest)

We publish information focusing on the products, employee activities and the major topics of the period, in order to deepen the stakeholders' understanding about the Showa Denko Group.

SHOWA DENKO REPORT 2018 on the Web Site (HTML)

The CSR measures of the Showa Denko Group are disclosed on our Web site. As well as focusing on the comprehensibility referring to various guidelines, we disseminate information with an improved quickness on the activities performed during the period.

Showa Denko Group in Numbers

OUR FIGURES

The Showa Denko Group conducts business globally across a range of fields. The following provides a numerical overview of the Group.

Showa Denko's Only **One, No. 1** products

The Showa Denko Group pioneered in commercial production of aluminum in Japan, and also produced ammonium sulfate fertilizer with home-grown method for the first time in Japan. Thus the Showa Denko Group has been providing society with useful products as a pioneering company since its foundation. We will continue contributing to the sound growth of society as an individualized company that create "Only one" and "No. 1" products and technologies.

High-purity gases for electronics

No.1 share in the world

These gases are used for etching, cleaning and membrane formulating processes in production of semiconductors and LCDs.



Graphite electrodes

Our high-quality large-diameter electrodes occupy No.1 share in the world

Graphite electrodes are used in electric steelmaking furnaces to melt scrap steel, and contribute to recycling of steel.



High-purity aluminum foil for capacitors

No.1 share in the world

This aluminum foil is used to produce aluminum electrolytic capacitors to be used in cars and power plants.



Ultra-bright LED

No.1 brightness in the world

We produce our proprietary red LED chips that emit 660nm wavelength light which is optimum for plant-growth at the top brightness in the world.



Carbon nanofibers(VGCF™)

The first commercialization in the world

VGCF™ is an additive to anodes of lithium ion batteries. It improves charge and discharge performance, life and capacities of LIBs.



Ethyl acetate

In-house developed production technology unique in the world

We produce various petrochemical products which are used as printing ink for food packages, solvents for paints, etc., with our original technologies.



79

Founded years ago

The Showa Denko Group started its business operations by focusing on the bright future of the electrochemical industry, which utilized one of Japan's important resources: abundant water energy. Originating from electrochemistry, our Group's technology further evolved to cover the fields of inorganic chemistry, organic chemistry and metal materials. Today, the gene of our original

Event

1908 ★ Established Sobo Marine Products K.K.
1921 ◆ Established Takada Aluminum Equipment Manufacturing K.K.
1926 ★ Established Nihon Iodine K.K.
1928 ★ Established Showa Fertilizers K.K.

1931 ★ Started manufacturing ammonium sulfate using domestic technology (Showa Fertilizers K.K.)
1934 ★ Industrialized domestically produced aluminum (Nihon Iodine K.K.)
1937 ● Established Riken Kohaku Kogyo K.K.
1939 ★ Established Showa Denko K.K.

1951 ● Achieved domestic production of synthetic resin emulsion
1953 ● Achieved domestic production of unsaturated polyester resin
1965 ● Achieved domestic production of vinyl ester resin

1969 ★ Oita Petrochemical Complex started commercial operation
◆ Showa Aluminum Can Corporation produced the first aluminum can in Japan

1908 -

With the business on track under the spirit of "tenacity and indomitability", established the foundation of the Showa Denko Group.

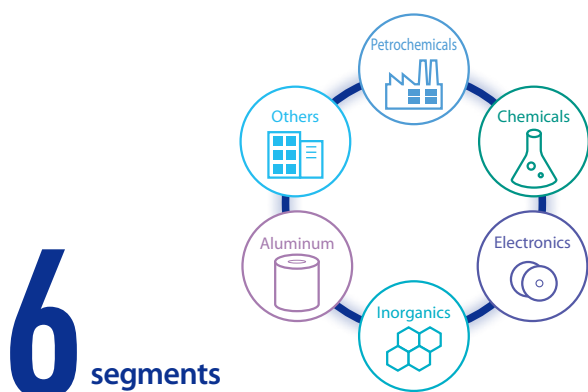
1951 -

Deepened and further developed business, taking advantage of postwar reconstruction and rapid growth

CSR

1981 ◆ Started aluminum can collection activities at certain plants

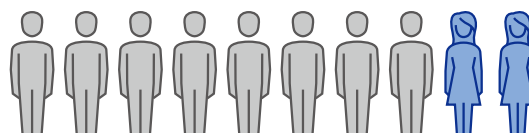
★ Showa Denko K.K. ◆ Showa Aluminum Corporation ● Showa Highpolymer Co., Ltd.



6 segments

We will realize dreams for the future with Power of chemistry × Power of technology.

We develop individualized product groups that realizes your dreams by utilizing our unique ideas and reliable technologies that make the most of the potential of chemistry.



Employees

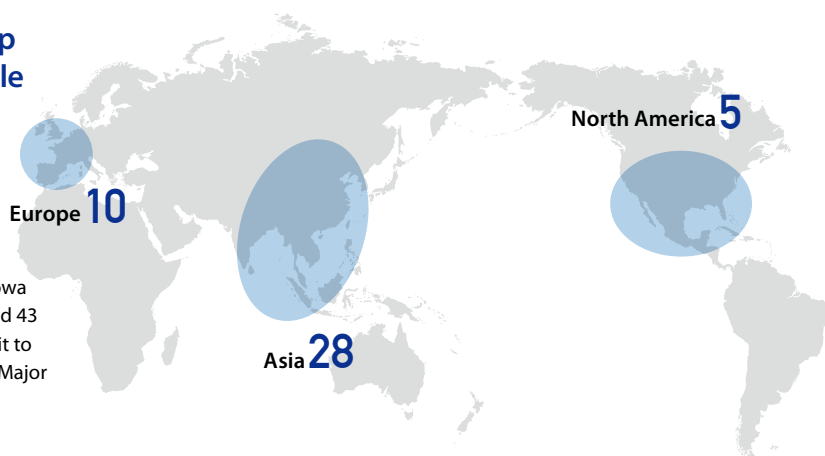
10,864

The Showa Denko Group has 10,864 employees, including 1,920 female employees. (As of December 31, 2017)

The Showa Denko Group expands on a global scale

43 bases

The Showa Denko Group, led by Showa Denko K.K., has 33 bases in Japan and 43 bases outside the country, allowing it to conduct business on a global scale (Major subsidiaries as of March 2018).



Net Sales

¥780.4 billion

Net sales for 2017 was ¥780.4 billion, and increased in all segments.

technology is inherited to a wide variety of products that are essential in everyday life, including materials and components used in the information/telecommunication industry and the automotive industry.

The following chronological table shows the history of the Group, including the histories of the former Showa Aluminum Corp. and former Showa Highpolymer Co., Ltd., which are strongly connected to the Group's current businesses.

1988 ★ Established Showa Denko Carbon, Inc.
★ Expanded into the hard disk business

2001 ★ ◆ Merged Showa Aluminum Corporation
2009 ★ Established Showa Denko HD Yamagata K.K.
2010 ★ ● Merged Showa Highpolymer Co., Ltd.

2017 ★ Established Advanced Battery Materials Division
★ Established Showa Denko Carbon Holding GmbH

1986 -
Switched to energy-saving products after overcoming oil crises

2001 -
Expanded into the energy-saving and high value-adding business in full-scale, through the fusion of organic/inorganic and aluminum technologies.

2012 -
Engaged in Shaping Ideas in pursuit of evolving chemical company with individualized products through the fusion of organic / inorganic and aluminum technologies

1990 ◆ Started company-wide aluminum can recycling activities
1995 ★ Formulated "Responsible Care Action Guidelines"
1997 ★ Published Responsible Care Report
1998 ★ Established "Our Code of Conduct"

2001 ★ ◆ With the merger with Showa Aluminum Corporation as the trigger, expanded aluminum can recycling activities to Showa Denko's plants, offices and group companies
2005 ★ Issued a CSR Report
★ Signed the "RC Charter"

2012 ★ Established "Our Code of Conduct and Its Practical Guide"
2013 ★ Our long history of aluminum can recycling activities received the "Minister of Economy, Trade and Industry's Prize" of the 3Rs (Reduce, Reuse, and Recycle) Promotion Merit Awards in FY 2013
2014 ★ Resigned the amended Responsible Care Charter
2016 ★ Received the "Platinum Kurumin"

Showa Denko's Ties with Society

Showa Denko's Ties with Society



01 Water supply
•Sodium hypochlorite (antimicrobial)

02 Drainpipes
•Corrosion-resistant coating
•Fireproof dual-layer pipe

03 Windows
•Synthetic zeolite

04 Containers for yogurt/jelly
•Aluminum cap seals
•Polypropylene containers

05 Aluminum cans

06 Beverages
•Carbon dioxide

07 Air-conditioner
•SiC epitaxial wafers for power devices
•Rare-earth magnetic alloys
•Synthetic zeolite

08 Snack Packages
•Normal propyl acetate (photogravure ink)

09 Digital cameras
•Semiconductor abrasives
•Titanium oxide /High-purity aluminum foil (for capacitors)

10 Flat-panel TVs
•LEDs
•LCD glass polishing material
•Aluminum heat sinks
•Titanium oxide /High-purity aluminum foil(for capacitors)

11 Poultics
•Sodium polyacrylate (raw material for pharmaceuticals)
•Ammonia (Antipruritic agents)

12 Lighting
•LEDs

13 Cosmetics
•Vitamin C derivatives
•Vitamin E derivatives

14 Apparel
•Ammonia (raw materials for synthetic fibers)

15 Plant factories
•LEDs
•Carbon dioxide
•Extruded aluminum shelves

16 Electric steel furnaces
•Graphite electrodes

17 Semiconductor plants
•High-purity gasses for semiconductor processing
•Solvent for semiconductor processing
•Semiconductor abrasives
•Waste gas treatment equipment

18 Tanks
•Corrosion-resistant coating

19 Hospitals
•Rare-earth magnetic alloys
•Chloroprene Rubber (disposable gloves)

20 Perm solutions
•Hair-curling agent

21 Houses
•External wall panels

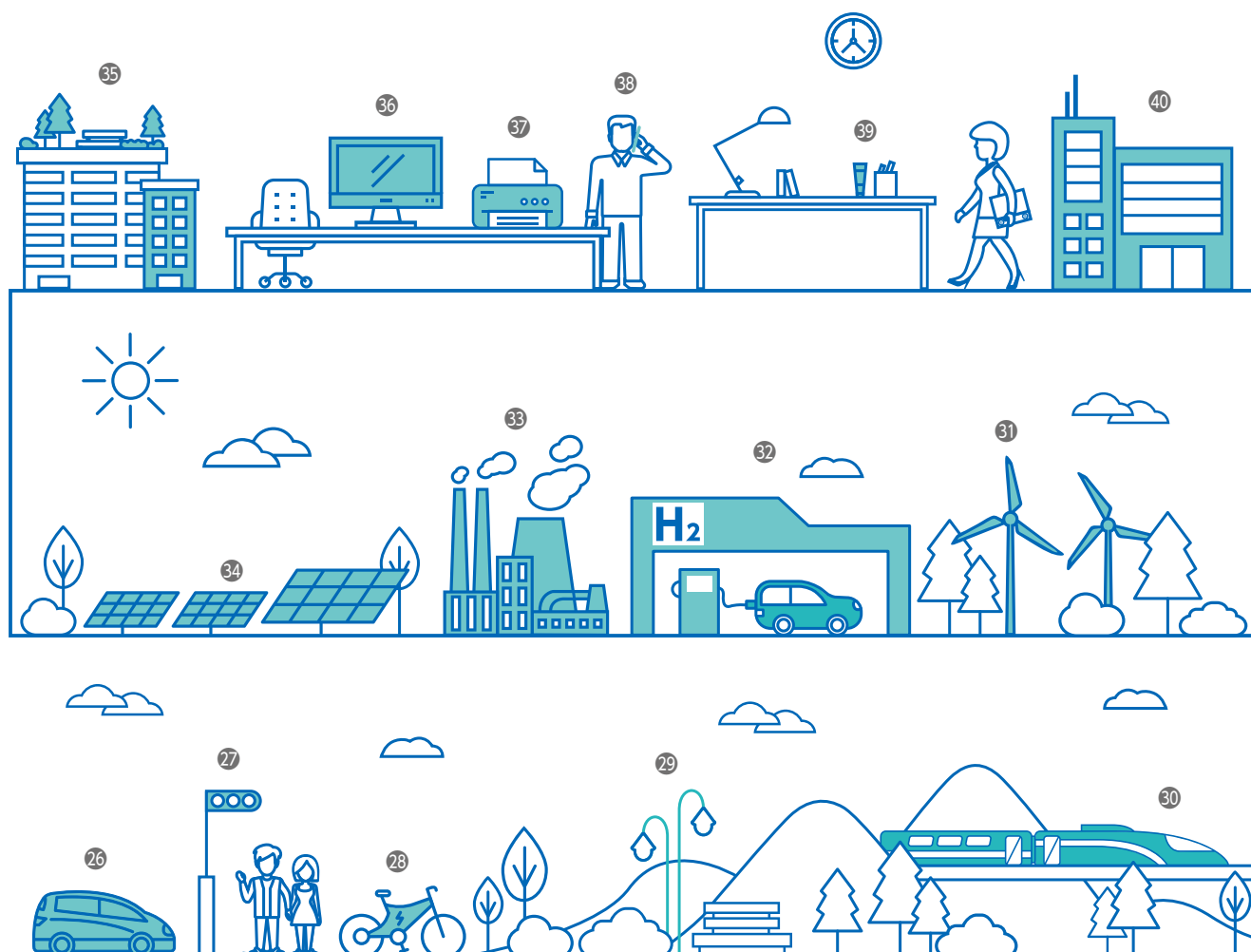
22 Agricultural materials
•Obsidian perlite

23 Fertilizers

24 Helmets
•Vinyl ester resins

25 Motor bicycle
•Forged aluminum rods

The Showa Denko Group's products are used as materials and components in diverse products that support and enrich your life and provide you with added convenience. We at the Showa Denko Group are conducting business in consideration of both the visible and invisible ties that bind the Group to society. The following shows some of the Group's products.



26 Automobiles

- SiC epitaxial wafers for power devices
- Forged aluminum rods
- Cooling devices for power control units
- Lithium-ion rechargeable batteries (Anode material, Carbon nanofibers, Aluminum laminate film)
- Rare-earth magnetic alloys
- Ultra-bright LEDs
- Synthetic zeolite
- Unsaturated polyester resins
- Emulsion (adhesive raw materials)
- Polypropylene

27 Traffic signals

- Ultra-bright LEDs

28 E-Bikes

- Rare-earth magnetic alloys

29 Streetlights

- Aluminum poles

30 Linear motor train

- SiC epitaxial wafers for power devices
- Rare-earth magnetic alloys

31 Wind power plants

- Rare-earth magnetic alloys
- Vinyl ester resins (blades)

32 Hydrogen stations

- Hydrogen (as fuel for fuel-cell vehicles)

33 Thermal Power plants

- Ammonia(denitration agent)

34 Solar power plants

- SiC epitaxial wafers for power devices
- High-purity gasses for semiconductor processing

35 Rooftops of buildings

- Waterproof paint for rooftops

36 Personal computers

- LEDs
- High-purity gasses for semiconductor processing
- Solvent for semiconductor processing
- Semiconductor abrasives
- Solder resist Ink
- Alumina (heat radiation materials)
- Ethyl acetate (Adhesive)
- Rare-earth magnetic alloys (Hard disk drives)
- Hard disk media

37 Laser beam printers

- Aluminum cylinders

38 Mobile phones, Smart phones

- Lithium-ion rechargeable batteries (Carbon nanofibers, Aluminum laminate film)
- Rare-earth magnetic alloys (Vibration motor)
- Titanium oxide(for capacitors)

39 Adhesive

- Emulsion
- Ethyl acetate

40 Data Center

- Hard disk media

Message from CEO



We will work to give satisfaction to all our stakeholders

Dramatic changes in the world economy and business environment

The world is undergoing substantial changes, including climate change, depletion of resources, demographic changes, urbanization, multipolarization of the world economy, and changes in the feedstock/energy-resources market. Moreover, dramatic technological progress, such as in artificial intelligence and IoT technologies, is transforming our economy, society, and daily life.

On the other hand, we are doing business in an environment in which multiple factors are interrelated in complex ways, making it difficult for us to predict the future. For example, various countries' political trends have the potential to produce drastic changes in foreign exchange rates as well as in the price of crude oil and other materials. These challenges notwithstanding, we will continue to manage our business from a medium- to long-term viewpoint and avoid being easily swayed by short-term changes in the business environment. The Showa Denko Group is a unique chemical manufacturer engaged in a wide spectrum of business segments including Petrochemicals, Chemicals, Electronics, Inorganics, and Aluminum segments. By taking advantage of our unique qualities and deepening and fusing our inorganic, metal, and organic technologies, we will produce excellent individualized products to become a "company contributing to the sound growth of society" toward creating a society where affluence and sustainability are harmonized.

Results for 2017 and outlook for 2018

As for 2017, thanks to robust demand in the Asian petrochemicals market, we were able to secure a high profit margin in the Petrochemicals segment. In the graphite electrode business too we achieved results far exceeding the profit target, being backed by the recovery of the market in the latter half of the year. As a result, we broke our past records for all of our income indicators for the year, namely, operating income, ordinary income, and net income.

In 2018, we will again break the records for operating income and net income by offsetting the cost of the large-scale equipment repair performed once every four years in the Petrochemicals segment and the decrease in profit in the hard disk (HD) media business by a substantial increase in profit in the graphite electrode business, whose size has been greatly expanded due to the business integration.

As a result of implementing multiple structural reform measures in and before 2016, we have successfully changed our corporate structure to one that allows us to take advantage of the favorable market environment. We have thus transformed our profit structure for the better.

For the term-end dividend per share, we increased it to 50 yen in 2017. We plan to increase the total amount of interim and year-end dividends to 90 yen per share in 2018. Based on the assumption that we will achieve record-high operating income and net income again in 2018, we will shift the use of funds from improving the financial structure to giving more consideration to growth investments and the return of profit to shareholders, thereby making improvements for greater corporate value.

(Billions of Yen)	2017 results	2018 revised forecast*
Net sales	780.4	935.0 ^{*1}
Operating income	77.8	137.0
Net income	64.0	131.5
Net income attributable to owners of the parent	33.5	85.0
Year-end dividends	¥50 ^{*2}	¥90 ^{*3}

*1 Announced on May 9, 2018.

*2 SDK paid dividends of ¥30 per share based on the record date of May 11, 2017. The table above does not include this amount.

*3 Announced on May 29, 2018.

Enhancement of the corporate structure to make high profits in a stable manner

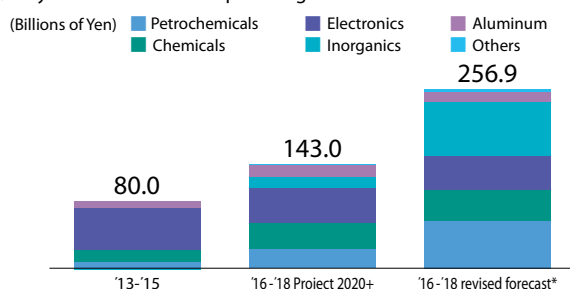
Showa Denko launched its medium-term business plan, "Project 2020+," in 2016. Under the plan it is deemed critical to improve profitability and minimize profit fluctuations.

For the improvement of profitability, we set the target of 143 billion yen for cumulative operating income for the three-year period of the plan, and have made steady progress toward achieving this target. For the minimization of fluctuations in profit, however, we have yet to meet the challenge.

In 2019, we will start a new three-year business plan and aim to achieve cumulative operating income exceeding 200 billion yen for the next three years in a stable manner.

In order to continue generating high profits even after the business environment ceases to provide us with tailwinds, we must constantly foster business reforms to increase the robustness of our company. To this end, we unquestionably need to expand our individualized businesses.

► 3-year accumulated operating income



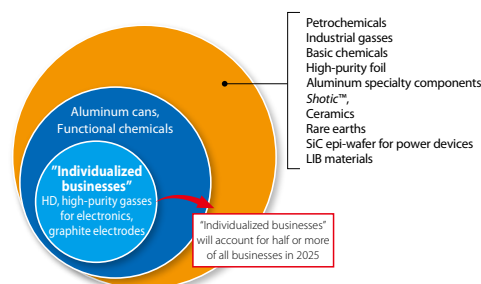
* Announced on May 9, 2018.

Expansion of individualized businesses

For Showa Denko, the term "individualized businesses" refers to businesses that can maintain both profitability and stability at a high level in a sustainable manner. Specifically, it means businesses that have: (1) an operating income margin of 10%, (2) operating income of several billion yen, and (3) high tolerance to changes in the market environment. Three of our businesses, namely, the HD media, electronic-material-processing high-purity gas, and graphite electrode businesses fall under this definition. The market sizes of these businesses are appropriate for our company. We have increased our presence in the respective markets by taking advantage of our high market shares as well as

our unique technologies and logistics ability.

By 2025, we will have transformed at least 50% of our businesses into individualized businesses. To this end, we will categorize our businesses into businesses for which we will work to increase sales in growth markets and those for which we will focus on increasing the operating income margin in mature markets, and will then formulate specific strategies for both types of businesses.



Toward sustainable growth

Recently, companies have been increasingly required to incorporate environmental, social and governance (ESG) viewpoints into their business management and give due consideration to the Sustainable Development Goals (SDGs). The Showa Denko Group has been regarding the fulfillment of its corporate social responsibility (CSR) as the basis for its business management. We have been meeting the expectations of all our stakeholders by providing products, technologies, and services that meet the needs of customers and society in addition to conducting business activities in an environment-friendly manner. At the same time, we have been implementing measures to foster compliance, diversity management, and corporate governance.

While our business environment and the world economy are constantly changing, we have a clear and constant goal, which is to give satisfaction to all our stakeholders and to show them the present robustness and bright future of Showa Denko.

Under our next medium-term business plan, which we are now formulating, we will work to increase customer value by expanding our individualized businesses and will also increase our social value by giving consideration to ESG issues and the SDGs.

The Showa Denko Group is heading toward one goal, but that goal can be attained in multiple ways, not just one. Based on this recognition, we will take actions without being afraid of confronting change so that the Showa Denko Group can make tremendous achievements as a company contributing to the sound growth of society toward creating a society in which affluence and sustainability are harmonized.

We would like to ask you to pay attention to our Group's future activities.

Kohei Morikawa

President and CEO
July 2018

Showa Denko Group's Business Model

The Showa Denko Group input a variety of capitals that support development of various products and technologies including production technologies, and output high value-added products, technologies and services through six business segments.

By the power of chemistry we will help people make their wishes and dreams come true and will thereby contribute to the creation of a society where affluence and sustainability are harmonized.

Social changes and issues

Investment capital

Showa Denko Group's business activities

- Multi-polarity of world economy
- Changes in the composition of population
- Progress of urbanization
- Dramatic development of technologies
- Changes in the environment surrounding raw materials and fuels
- Climate change and depletion of resources



Financial capital

Consolidated total assets

¥1,024.7 billion
(As of December 31, 2017)



Instrumental capital

Worldwide
production bases



Intellectual capital

R&D budget

¥60 billion
(2016-18 total)



Human capital

The number of Group employees

10,864
(As of December 31, 2017)



Social & relationship capital

Cooperation with
business partners



Natural capital

Energy (crude oil equivalent)

1.20 million kl
(2017, Group total)



6 Segments

P.12

Dialogue with stakeholders

Values to be created

Showa Denko Group's medium- to long-term goals

Expand individualized businesses and increase profitability to build a business structure with minimal revenue fluctuations

Values created in business activities

Financial

We are now formulating a new medium-term business plan.

Aiming to make individualized businesses occupy (2015) **30%** => **50%** of net sales by 2025

Aiming to make overseas sales occupy (2015) **40%** => **60%** of net sales by 2025

Debt/equity ratio Constantly within **0.8 to 1.0**

Non-Financial

Serious incidents related to equipment/environment **Zero**

Industrial waste Maintain **zero emissions**

Quality claim **1/2** or less (relative to 2015)

Rate of lost-time injuries as the group **0.1** or less

Number of female managers and its ratio **40** female managers at the end of 2020 (5% of all managers)

Ratio of handicapped employees **2.3%** or more

Values to be created in the five market domains

Electronics

·Intensive accumulation and dispatch of information

Mobility

·Safety/Security ·Enhanced durability ·Emission control
·Improving fuel efficiency

Energy

·Improving resource efficiency ·Diversifying energy sources
·Efficient use of electricity

Infrastructure

·Mitigating environmental burden ·Resource recycling

Living Environment

·Safety/Security ·Industrialization of agriculture

SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



Solution of
social issues

Contributes toward creating a
society where affluence and
sustainability are harmonized.

Become a company
contributing to the
sound growth of
society

(Shareholders and Investors/ Customers and Business partners/ Local communities and authorities/ Employees)

Medium-term business plan: "Project 2020+"

Medium-term business plan: "Project 2020+"

The Showa Denko Group has been implementing the three-year medium-term business plan, "Project 2020+," since 2016. In line with this plan, we will implement innovative measures with a focus on stability in addition to growth potential and profitability, including: (1) improving the profitability of existing businesses through renewal of business models; (2) making the best use of M&A and business partnerships; and (3) accelerating overseas business expansion, thereby solidifying the revenue bases and expanding individualized businesses for sustainable growth.

* Individualized business: Refers to a business that is exceeding a certain scale, generating a certain level of profit, and offering highly competitive technologies and/or business models.

► Showa Denko Group's contribution to society

We are operating businesses targeting the five market domains that we set when we formulated the medium-term business plan: Infrastructure, Energy, Mobility, Living Environment, and Electronics.

We will supply high value-added products, technologies, and services to customers by making use of our Group's materials, components, technologies, and human resources.

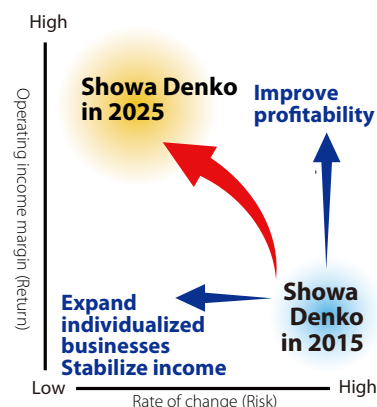
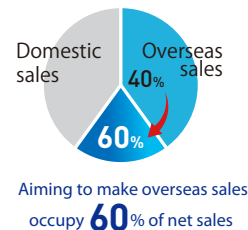
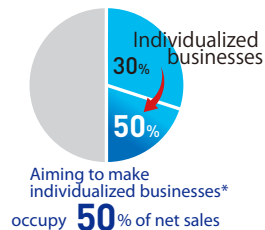
● We offer high value-adding "products × technology × services" to We offer high value-adding



► Target image of the Showa Denko Group in 2025

We will take a market-oriented approach to our products, which are developed through a product-oriented approach in the aforementioned five market domains, with an eye to establishing a business structure that is not easily impacted by market conditions and where revenue fluctuations are minimized.

We will increase the share of the individualized businesses in the Group's total sales from the present 30% to 50%. Also, with a focus on the growth businesses, we will expand our overseas sales ratio from 40% to 60%, thereby increasing our profitability and suppressing revenue fluctuations.



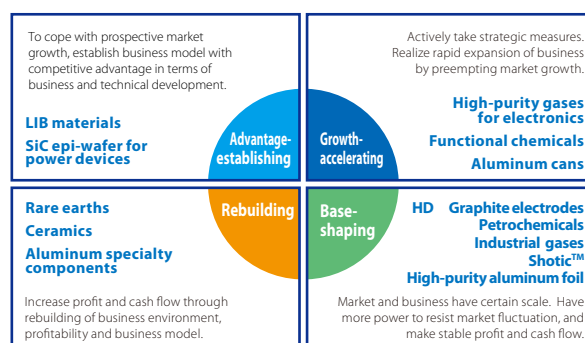
► Portfolio

For each business, we are speeding up the measures based on the missions defined for each category of the business portfolio.

We will produce stable profit and cash flow from the "Baseshaping" businesses, while proactively expanding the three "Growthaccelerating" businesses in line with the growth of overseas markets. In the lithium-ion battery materials business, which we have included in the "Advantage-establishing" businesses, we will expand our supply capacity in response to the rapid expansion of the automotive components market. Also, for SiC epitaxial wafers for power devices, we are fostering technological development ahead of the full-scale launch of the market while proactively searching for opportunities in the market.

For our individual businesses, we are making reexaminations in consideration of the business environment, profitability, and business models with a view to restructuring them, including by means of consolidation and withdrawal.

● Mission of each business



Our progress with “Project 2020+”

We will introduce the case of the carbon business, which is showing improved performance, as an example of our progress with “Project 2020+.”



General Manager, Carbon Division

Hidehito Takahashi

Aiming to make the carbon business a truly individualized business for the Showa Denko Group

In October 2016, Showa Denko made an announcement about the integration of SGL GE Holding GmbH (presently Showa Denko Carbon Holding GmbH: SDCH) into its carbon business. On October 2, 2017, one year after the announcement, the integration was completed with the approval of the related authorities in each country. As a result, Showa Denko became the world’s largest graphite electrode supplier, boasting more than 30% of the global total production capacity.

The graphite electrode business is easily influenced by changes in the external environment, including trends in the iron & steel industry. We announced the business integration in an extremely difficult market environment and some were skeptical about the integration. Subsequently, however, the excessive iron & steel production in China was discontinued and the market began to recover, helping us successfully implement the M&A project. But the business integration is not in and of itself our target or goal. We need to provide customers with the greatest value based on the integration, for which all members of the Carbon Division are continuing to work hard.

Showa Denko’s graphite electrodes are highly rated by customers for their quality and customization. In particular, for ultra-high power (UHP) graphite electrodes with large diameters, we supply products with the world’s top quality and take the top spot in the market. SDCH, meanwhile, has an advantage in terms of the manufacturing cost of graphite electrodes and has excellent human resources. The business integration has made it possible for us to share the best practices of the two companies for technologies and production processes, which will help us establish ourselves as the No. 1 supplier in the industry in terms of both quality and cost.

As a result of the business integration, we have become the world’s largest manufacturer of graphite electrodes, but if the costs of

running the business are doubled, the integration will be meaningless. Accordingly, we must spare no effort to produce an integration effect of 4 billion yen, as announced in 2016. In addition to sharing the best practices as already mentioned, we will implement measures to increase our logistics efficiency and benefit from economies of scale in the procurement of materials and other operations. To achieve the target of becoming the very best manufacturer of graphite electrodes in terms of both quality and cost, we must stably supply products with high cost performance to customers. To this end, we will work to optimize our business, determining at which of the Group bases we can manufacture the products needed by customers with appropriate quality and pricing and how we can maximize our profit in the business. As the world’s top graphite electrode manufacturer, we will also work globally to draw the attention of our customers to the importance of partnerships.

The Showa Denko Group aims to expand individualized businesses, and the graphite electrode business is an individualized business in that it has an “operating income margin of 10% or higher” and “operating income of at least several billion yen.” However, for “high tolerance to changes in the business environment,” we can prove that the business has such tolerance only after the environment deteriorates. Presently, we can only say that the graphite electrode business is a qualified candidate to be an individualized business.

We aim to develop the business into one that can post operating income of 10 billion yen even in a severe market downturn. To this end, we will work to become the very best supplier in the industry and make our business a truly individualized business as early as possible.

Introduction of Businesses of the Group

Consolidated
sales ratio by segment

30.1%

Petrochemicals Segment		(Billions of yen)		
	2017	2016	Increase/ decrease	Increase/ decrease ratio(%)
Sales	251.1	185.8	65.3	35.2
Operating income	33.4	20.7	12.7	61.2

Petrochemicals Segment

The Petrochemicals Division consists of the Olefins Department and the Organic Chemicals Department.

The Oita Complex is the main manufacturing bases of the Division and is equipped with a naphtha cracker. As its feature, the Complex has a well-balanced demand structure. The basic materials manufactured by Showa Denko within the Complex are supplied to the plastics, synthetic rubber, and styrene monomer plants that are operated by other companies within the premises as well as to the plant of acetyl derivatives operated by Showa Denko itself. The Division is efficiently integrating new and old cracker equipment and diversifying materials ahead of competitors to enhance its competitiveness.

The Olefins Department provides basic petrochemical products, while the Organic Chemicals Department is expanding its business by using Showa Denko's advanced catalyst technologies for acetyl derivatives.

Ethylene



We contribute to effective use of resources and high cost competitiveness by not relying solely on naphtha (raw material diversification) to produce ethylene, which is widely used to produce various petrochemicals.

n-Propyl acetate (NPAC)



N-propyl acetate (NPAC) is used in solvents for special gravure printing ink. Because NPAC is friendly to the environment, it is increasingly used in the food packaging industry.

Allyl alcohol is used as a material for surfactants used for diverse applications as well as for the manufacture of eyeglass lenses and aroma essences.

Allyl alcohol



QUALEAR™ is a new kind of polypropylene manufactured and sold by SunAllomer Ltd. This product, which is well balanced in terms of transparency, resistance to shocks, and rigidity, meets the needs of customers in the food packaging and automobile fields in particular.

QUALEAR™





Chemicals Segment		(Billions of yen)		
	2017	2016	Increase/decrease	Increase/decrease ratio(%)
Sales	148.8	134.5	14.2	10.6
Operating income	16.5	13.8	2.7	19.2

Chemicals Segment

The Industrial Gases Division supplies oxygen, nitrogen, argon, and other gases separated from air as well as compressed hydrogen, carbonic acid, dry ice, and other industrial gases to a range of industries.

The Basic Chemicals Division consists of the Industrial Chemicals Department and the Organic Industrial Chemicals Department. The Industrial Chemicals Department supplies ammonia, caustic soda, hydrochloric acid, and other industrial chemicals. The Organic Industrial Chemicals Department supplies acrylonitrile, amino acid, and chelate agent as well as elastomer products, such as chloroprene rubber and chlorinated polyethylene. ECOANN™ ammonia, which is made from used plastics, is a product that contributes to the creation of a recycling-oriented society and is mainly used as a denitration agent at thermal power plants.

The Electronic Chemicals Division provides semiconductor manufacturers in Japan and overseas with high-purity gases, chemicals, and equipment for use in the LCP, LED, and solar cell manufacturing processes.

The Functional Chemicals Division consists of the Functional Polymers Department and the Specialty Chemicals Department. The Functional Polymers Department provides various types of plastics and molding compounds made by using the plastics. The Specialty Chemicals Department offers innovative and unique products, such as raw materials for cosmetics, resins for use as electronic materials, and columns for high performance liquid chromatography (HPLC).

Electronic specialty gases



Electronic specialty gases are used in production processes for electronic components such as semiconductors, LCD panels, LEDs, and solar cells. Showa Denko manufactures dozens of these high-purity gases including ammonia, chlorine, and fluorine-containing gases.

Unsaturated polyester resin



Rigolac™, unsaturated polyester resin that meets requirements for a lightweight material with high durability and high corrosion resistance, is used for a wide range of applications including automotive components, home appliances, and ocean development.

ECOANN™ is ammonia produced from recycled plastics. While the quality is on par with that of conventional ammonia, the environmental impact caused by the manufacture of this product is much smaller.

Ammonia



Showa Denko Gas Products Co., Ltd. contributes to securing safety and stable supply of food resources by supplying carbon dioxide mainly for carbonated beverages and dry ice for cooling.

Carbon dioxide and dry ice



Introduction of Businesses of the Group

Consolidated
sales ratio by segment
14.7%

Electronics Segment			(Billions of yen)	
	2017	2016	Increase/ decrease	Increase/ decrease ratio(%)
Sales	123.1	120.5	2.6	2.2
Operating income	21.9	15.0	6.9	46.0

In 2017, we transferred the lithium-ion battery materials business from the "Others" segment to the "Electronics" segment. Accordingly, the business is included in the "Electronics" segment in the financial results for 2016.

Electronics Segment

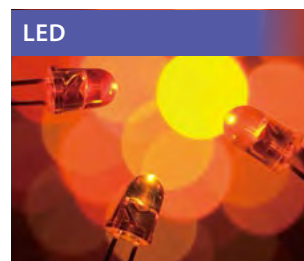
The HD Division conducts business from seven bases around the world, including three in Japan. It provides world-class high-quality products for use in computers, DVD recorders, and other consumer electronic products as well as for use in the enterprise field, where demand is expected to grow due to the spread of cloud computing.

The Electronics Materials Division supplies compound semiconductor materials and rare earth magnet alloys. With regard to compound semiconductor materials, the Division has a wide lineup of high-output LEDs for industrial applications, including use in displays and sensors. The Division also produces high-quality rare earth magnet alloys to be used in small motors for electronic devices and in high-performance motors for hybrid cars and electric vehicles.

The Advanced Battery Materials Division is promoting production and sales of various materials for lithium-ion batteries, the demand for which has been expanding recently.



As the world's largest hard disk manufacturer and seller, the Showa Denko Group is utilizing the leading-edge technologies to expand the storage capacity of its hard disks, while building the optimal production and supply system to help the Group meet the requests of customers in a smooth manner.



In addition to a broad lineup of infrared LED chips used as light sources for optical sensors for various applications, we also offer high-output red LED chips optimized specifically for plant growth.

The demand for rare earth magnet alloy is growing in fields such as drive motors for hybrid cars and energy efficient home electric appliances. We are also strengthening the development of next-generation magnet alloys with decreased expensive heavy rare earth content.

Rare earths



For the lithium-ion battery market, we offer a variety of items, including SCMG™ high-input/output long-life anode material, VGCF™ unique anode and cathode additive featuring high stability and quality, and SPALF™ aluminum laminated film produced and marketed.

Lithium-ion battery materials



Consolidated
sales ratio by segment

8.8%

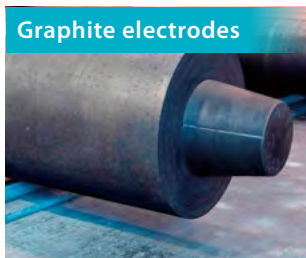
Inorganics Segment		(Billions of yen)		
	2017	2016	Increase/ decrease	Increase/ decrease ratio(%)
Sales	73.4	50.9	22.6	44.4
Operating income	7.1	△5.8	12.8	—

Inorganics Segment

Capitalizing on its long-accumulated high-temperature fusion technology, high-temperature sintering technology, and the pulverization/classification technology, the Ceramics Division manufactures and sells polishing materials, abrasives, and refractories in which fused alumina, silicon carbide, and boron nitride are used. As for ultrafine titanium oxide, which is used to manufacture multilayer ceramic capacitors (MLCCs) to be mounted on a range of electronic devices, the Division is expanding sales for use in high-end products.

The Carbon Division supplies graphite electrodes for electric steelmaking furnaces. These electrodes are indispensable for the recycling of iron and steel. Showa Denko's graphite electrodes are highly acclaimed by customers around the world. The Division integrated the graphite electrode business of German company SGL GE in 2017 to become the world's No.1 manufacturer in the field. The Division will enhance the development and marketing of volume zone products for the remarkably growing markets of emerging countries while providing advanced markets with high-end products.

Graphite electrodes



Graphite electrodes contribute to iron and steel recycling as a component to melt iron and steel scraps in electric steel furnaces. Our graphite electrodes are rated very highly by customers throughout the world due to their excellent quality.

Electrofused refractories



We develop and manufacture a variety of electrofused refractories, applying sophisticated fusion technology and pulverization/granulation technology gained from the manufacture of abrasive materials.

With a hardness coming second only to diamond, CBN is used for tools to cut automotive and other components.

CBN (cubic boron nitride)



SUPER-TITANIA™ high-purity titanium oxide is used as one of the main materials in ceramic capacitors installed in familiar electronic and electrical devices.

Ceramics for capacitors



Introduction of Businesses of the Group

Consolidated
sales ratio by segment

12.6%

Aluminum Segment			(Billions of yen)	
	2017	2016	Increase/ decrease	Increase/ decrease ratio(%)
Sales	105.4	98.6	6.9	7.0
Operating income	6.7	4.4	2.3	51.6

Aluminum Segment

The Aluminum Rolled Products Division provides high-purity aluminum foils, which are carefully purified and manufactured for use in electrolytic capacitors. These capacitors are widely used in a range of products, including home electric appliances and automobile-related devices.

The Aluminum Specialty Components Division provides aluminum materials and processed products. The Division supplies the following products not only in Japan but also in Europe, the United States, and Southeast Asia: aluminum cylinders (core component of laser beam printers), large/complexly shaped extruded products, continuously cast rods of aluminum alloys (SHOTIC™) made using Showa Denko's proprietary technologies, and forged products for automobile parts including compressors for in-vehicle air conditioners.

The Division also supplies a range of heat exchangers for home electric appliances and industrial equipment worldwide and is engaged in the development and manufacture of power semiconductor cooling devices used in hybrid cars, electric vehicles, and solar power generation equipment.

The Showa Denko Group became the first enterprise to manufacture aluminum beverage cans in Japan in 1971. Since then the Aluminum Can Division has been supplying high-quality aluminum cans for beverages through integrated production, including the pressing of can bodies and can ends and the printing of their labels.

High-purity aluminum foil

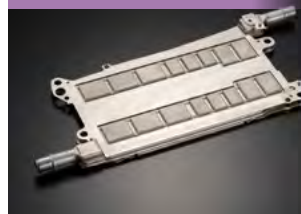


High-purity aluminum foil is a key material in electronic components essential to IT devices, home electric appliances, and automobiles. High-purity aluminum foil for electrolytic capacitors is produced through precise control of purity and manufacturing processes.

We are producing SHOTIC™ continuously cast rods of aluminum alloy and their forgings. The fine alloy structure contributes to reducing the weight of automobiles and the products are used as parts for compressors of in-vehicle air conditioners, etc.



Cooling devices



We provide oil coolers, heat sinks and other heat exchangers for industrial equipment, as well as cooling devices for hybrid car power control units.

Showa Aluminum Can Corporation was the first to manufacture aluminum cans in Japan. Its lightweight and recyclable aluminum cans are sold both in Japan and abroad.

Aluminum Cans





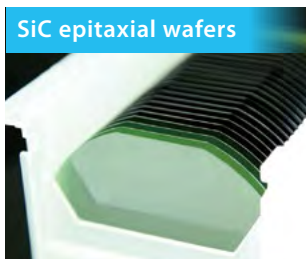
Etcetera Segment		(Billions of yen)		
	2017	2016	Increase/decrease	Increase/decrease ratio(%)
Sales	133.6	128.7	4.9	3.8
Operating income	0.6	0.6	0	1.6

* 2017年よりリチウムイオン電池材料事業を「その他セグメント」から「エレクトロニクスセグメント」に移管いたしました。2016年実績は新セグメントに組み替えて表示しております。

Development Themes and Related Businesses

Included in this section are themes for future businesses as well as the manufacture and sale of various chemical products, light metals, and building and civil engineering materials.

SiC epitaxial wafers



The wafers are used as materials for next generation power semiconductors, which are expected to contribute to energy conservation. The wafers are being increasingly used in power devices for EV chargers, photovoltaic generation, and servers.

Plant factory



Showa Denko's LED-based plant factory system controls red and blue LEDs separately for the production of high value-added vegetables with high productivity.

Obsidian perlite produced by Fuyo Perlite Co., Ltd. is a natural material made of burned obsidian, used as lightweight aggregate (specific gravity: 0.1) to construct a comfortable living environment. Obsidian perlite is widely used also for environmental purposes, including use in soil improvers for rooftop greening and gardening and in microbial culture solutions, as well as being used for the treatment of urine in mountainous areas.

Obsidian perlite



"Showa Sound Insulating FDP," produced and sold by Showa Denko Kenzai K.K., is a high-value-added drain riser adopted by numerous condominiums, hotels and hospitals, featuring superior sound insulation, compact size, fire resistance and ease of construction.

Sound-insulating reproof dual-layer pipe



Major Subsidiaries in Japan

■ Petrochemicals segment

Sun Allomer Ltd.
Tsurusaki Kyodo Doryoku K.K.

■ Electronics segment

Showa Denko HD Yamagata K.K.
Showa Denko Packaging Co., Ltd.

■ Aluminum segment

Showa Aluminum Can Corp.

■ Chemicals segment

Showa Denko Gas Products Co., Ltd.
Nippon Polytech Corp.

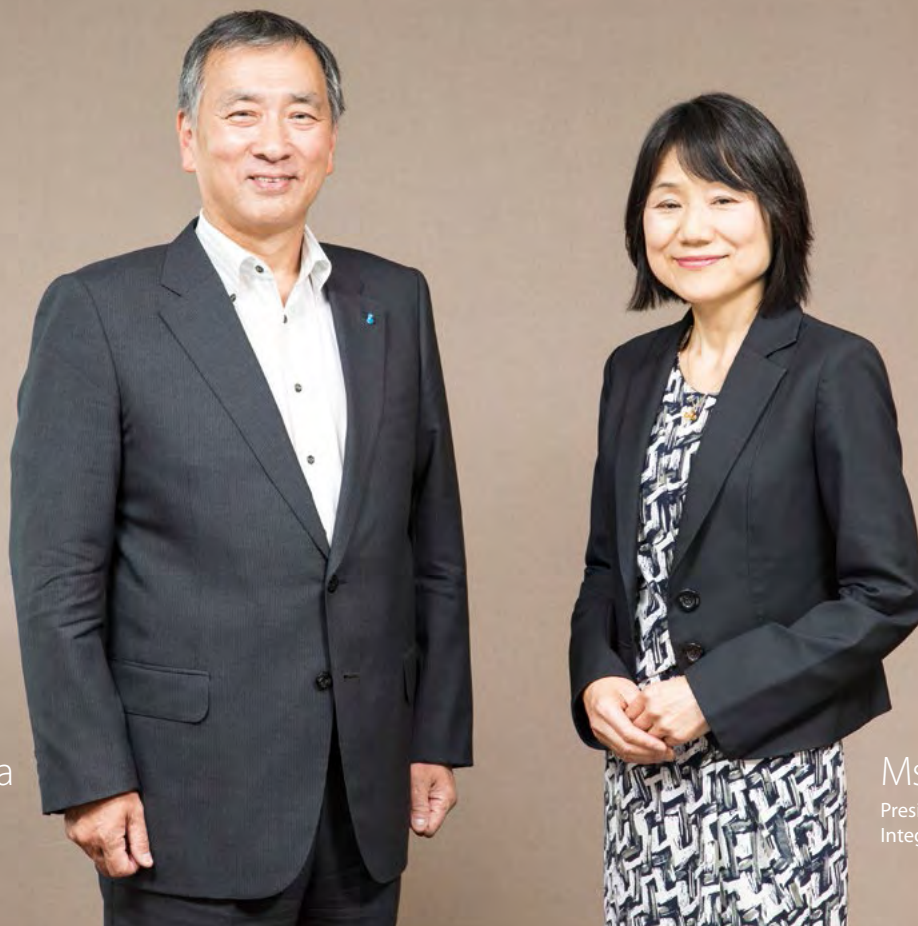
■ Inorganics segment

Showa Denko Ceramics Co., Ltd.
Showa Fine Ceramics Co., Ltd.
Showa Denko Kenso Co., Ltd.

■ Others segment

Shoko Co., Ltd.
Showa Denko Kenzai K.K.

Major Subsidiaries as of March 31, 2018



Kohei Morikawa
President and CEO
Showa Denko K.K.

Ms. One Akiyama
President
Integrex Inc.

Dialogue between the CEO and Outside Expert

Toward the Sustainable Development of Society and the Improvement of Corporate Value

Challenges to be met to increase corporate value while contributing to the sustainable development of society

President Kohei Morikawa of Showa Denko talked with Integrex Inc.'s President One Akiyama, a close follower of ESG investor trends. The two met at the company's head office in June 2018.

Trends in ESG investment and sustainability of companies

Akiyama: The Principles for Responsible Investment (PRI) launched with the support of the United Nations in 2006 has moved investors to evaluate companies from ESG viewpoints. The PRI is an initiative that calls for declarations of a commitment to incorporate ESG viewpoints in investment decision-making. Lots of institutional investors are signatories to the Principles and the total amount of assets managed by these signatories is said to reach 80 trillion dollars. According to the PRI, environmental, social, and governance (ESG) issues are common to all companies and have a substantial influence on their sustainable growth.

Morikawa: The chemical industry produces things that do not exist in nature and it should therefore take a proportionately heavy share of responsibility. Based on this recognition, the industry has

long been taking measures for the creation of a sustainable society, and Showa Denko too has been conducting Responsible Care (RC) activities on a company-wide basis since 1995 as voluntary activities to give due consideration to the environment, safety, and human health throughout the life cycle of chemical substances, including at the development stage through to the disposal and recycling stages.

Akiyama: In the past, companies conducted environmental activities mainly to minimize the environmental impact of their own business activities. Since several years ago, however, more attention has been paid to environmental contributions made by companies through their products and services.

Morikawa: In accordance with changes in society, what is expected of companies has also been changing. The international community now expects companies to contribute to the achievement of the Sustainable Development Goals (SDGs), which are a collection of 17



global goals to be met by 2030. What Showa Denko aims to achieve is certainly in line with the SDGs. As a company in the manufacturing industry, Showa Denko will of course fulfill its responsibility for “Goal 12: Responsible Production and Consumption.” Moreover, we are working to develop and supply products and services that help solve social issues, such as climate change, depletion of resources, and demographic changes.

The Showa Denko Group’s initiatives for the environment and society

Akiyama: For example, for the environment, what measures is the company implementing?

Morikawa: We are chemically recycling used plastics. The recycling of used plastics into hydrogen contributes to the stable supply of hydrogen as a material for ammonia and also helps reduce the use of fossil fuels. In addition, CO₂ generated in the recycling process can be used to make carbonate gas and dry ice. More than anything, we can contribute to the better treatment of used plastics discharged from households.

Graphite electrodes used in electric furnaces to melt iron scraps also contribute to the recycling of iron. By recycling iron scraps into iron, we can reduce the use of energy by 75% compared with making new iron from iron ores.

Akiyama: If employees are aware of the fact that they can contribute to the future of the Earth, society, and humankind by such development and manufacturing activities, it will increase their motivation for work.

Morikawa: We are committed to giving satisfaction to all our stakeholders, and employees represent a major stakeholder for the company. I believe that the management team should provide employees with comfortable workplaces as its responsibility. The Showa Denko Group regularly conducts a survey on employees’ work satisfaction and implements firm-wide measures to solve any problems identified through the survey. I also take the view that it is one of my missions as a top executive of the company to communicate my ideas directly to employees. Accordingly,

whenever I visit company bases located in Japan and abroad, I always take time to talk with local employees.

Moreover, we have assigned female employees to a range of workplaces, including manufacturing and other on-site work facilities. We are striving to improve our workplaces for employees by measures such as introducing a flexible work system and providing facilities where they can rest and refresh themselves. Also, for the employment of people with disabilities, we are working on the provision of workplaces where all kinds of people can make meaningful contributions.

Akiyama: Work style reforms have recently been attracting a lot of attention. It is important for employees to work efficiently in order to have their own time and achieve job satisfaction.

Morikawa: Increasing productivity naturally helps reduce overtime work. At each base of Showa Denko, efforts have been made since 2009 to reduce employees’ working hours based on the company-wide targets set from a medium- to long-term view and in cooperation with the company’s labor union. The targets are: (1) Reduce the number of employees whose annual overtime work hours exceed 720 hours to zero; (2) Reduce the total actual working hours of each employee to less than 2,000 hours per year; and (3) Keep the upper limit set in the so-called “Article 36 Agreement” made in line with Article 36 of the Japanese Labor Standards Act to 60 hours. I expect that all our bases, including manufacturing facilities where construction and repair work might require that employees work longer hours, will achieve these targets.

Akiyama: The Showa Denko Group is unique in that it is engaged in a range of business segments, including organics, inorganics, and aluminum. I think an advantage of your company is that in-house experts in the respective fields can make “chemical reactions” to create something new.

Morikawa: As a matter of fact, we are promoting exchange across business segments, in particular among those engaged in R&D. Nobel Prize laureate Reona “Leo” Esaki said that an ideal research organization was one that existed in a state of “organized chaos,” meaning individual researchers are conducting research as they see fit, but they are all going in the same direction as an organization. I do think it is



important for researchers to have a shared philosophy and shared ways of thinking regarding their research.

Values shared by employees of a manufacturing company

Akiyama: I hear that the Showa Denko Group is proactively conducting business also outside Japan and non-Japanese employees account for about 40% of its total employees. How are these employees, who have diverse cultural and religious backgrounds, sharing the same values as Group members?

Morikawa: We aim to manufacture the world's highest-quality products with the world's highest efficiency, and I expect employees to value compliance, occupational safety, and product quality as the basis for the Group as a manufacturer. Specifically, I would like to accomplish the following across all Group companies, both within and outside Japan: (1) make employees alert to safety and compliance issues; (2) provide workplaces where employees can openly come out and say, "We have a problem" or "It is unsafe"; and (3) create a corporate culture that encourages employees to make quick responses and improvements when someone points out a problem at the workplace. And to ensure corporate governance, it is becoming increasingly important to make all Group employees aware of the direction that the Group is heading.

Akiyama: ESG investors are also showing strong interest in the measures taken by companies across their supply chains.

Morikawa: We are promoting CSR-oriented procurement among companies from which we procure materials. We set procurement guidelines and ask the suppliers to comply with them. We also ask them to conduct self-checks and visit them to understand their present situations and help them make improvements as necessary. Since 2010, we have visited a total of 378 suppliers to have dialogue with them on compliance, BCP, and other issues. By promoting CSR measures across the supply chain, I believe that we can enhance our ability to help solve social issues.

Aiming to enhance corporate value while delivering extra value to society

Akiyama: You are thus steadily implementing measures.

Morikawa: As a result, Showa Denko was included in all three ESG indices selected by the Government Pension Investment Fund (GPIF), the world's largest investor, in July 2017.

Moreover, Showa Denko was named one of the White 500—companies that are demonstrating excellent health and productivity management—for two years in a row and was also granted Platinum Kurumin certification. I believe we were given these honors in recognition of our past efforts.

Akiyama: GPIF is managing assets for the future of Japanese citizens and is fostering sustainable investments by choosing companies that focus on ESG measures in the investment target. What is most important for companies is to appropriately understand how ESG issues are related to their own businesses, incorporate the findings in their medium- to long-term growth strategies, and show their scenarios for the future to investors. For the Showa Denko Group, the graphite electrode business could provide a model case. I think that the Group can earn a higher rating from ESG investors by fostering measures to continue contributing to the reduction of CO₂ emissions throughout society as a whole based on its business strengths.

Morikawa: I think that each and every employee can help the company become a first-class company by making themselves first-class employees and generating first-class synergies. We call first-class businesses "individualized businesses," that is, businesses that meet the three conditions of: (1) operating income of 10% or higher; (2) operating income of at least several billion yen; and (3) being highly competitive and not easily influenced by changes in the business environment. Individualized businesses are our driving force to achieve further growth.

We will hone our individualized businesses, create products and services that can contribute to the creation of a sustainable society, and make progress toward the sustainable growth of our company and enhancement of its corporate value.



R&D of the Showa Denko Group

Message from CTO



Create new value by forging, polishing, and linking diverse individualized technologies

Managing Corporate
Officers & CTO

Jun Tanaka

In January 2016, the Showa Denko Group started its new medium-term consolidated business plan "Project 2020+." Under this new business plan, the Group will strengthen revenue bases of its diverse businesses and expand its individualized businesses, aiming to contribute to the solution of social issues in global scale by providing high-value-added products and services to five market domains, namely, "Infrastructure," "Energy," "Mobility," "Living environment," and "Electronics."

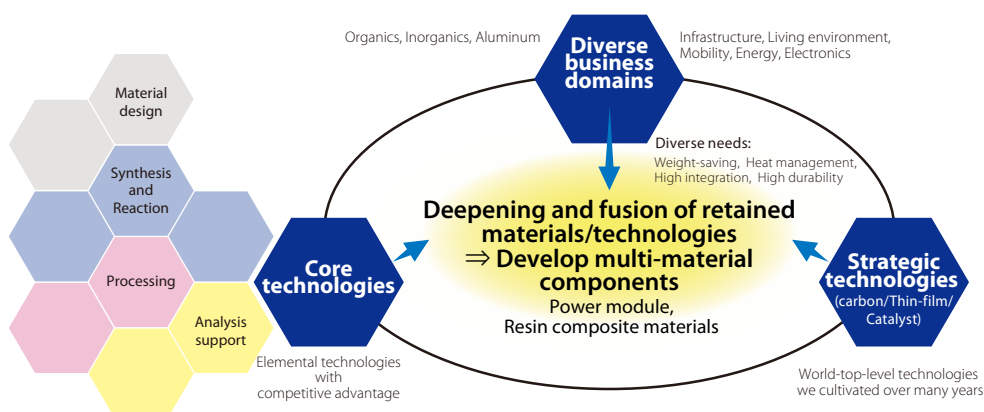
In recent years, customers' requests to materials and parts are diversified so much that it is necessary for us to reconcile diverse technologies with products in order to secure our competitiveness. We think we can take advantage of this diversity in customers' needs by making the most of our wide-ranging chemical technologies that covers inorganic, aluminum and organic chemicals, and our diverse human resources that support these technologies.

Therefore, we made it our basic policy on R&D to "Create new value by forging, polishing, and linking diverse individualized technologies." Under this basic policy, we will deepen and fuse our "diverse business domains," our "core technologies" that consist of elemental technologies with competitive advantage, and our "strategic technologies" that consist of the world-top-level technologies we cultivated over many years. Thus we will promote R&D in a way of our own.

At the beginning of 2016, in order to conduct this individualized R&D, we established the Institute for Integrated Product Development, which we organized by adding research facilities of six locations, centering on aluminum and inorganics technologies, to the former Institute for Polymers and Chemicals. On the initiative of this new R&D organization, we will enhance cooperation among Divisions and Plants, develop our retained materials into multi-material components, and quickly respond to our customers' needs in a creative way. The Institute for Advanced and Core Technology will deepen our strategic technologies consisting of "carbon, thin-film, and catalyst technologies," and focus on development of next-generation businesses. On the other hand, in order to realize and maximize the fruits of R&D as early as possible while making our original businesses and technologies as the pivot of our R&D activities, we will positively utilize open innovation and M&A, and strengthen cooperation with our partners.

The Showa Denko Group will make its R&D progress vigorously at world level by providing customers with original solutions, deepening and fusing its individualized technologies which are expected to become sprouts of next-generation growth businesses.

■ Create new value by forging, polishing, and linking diverse individualized technologies



R&D of the Showa Denko Group

Plan for R&D

The Showa Denko Group launched the medium-term business plan "Project 2020+" in 2016, and 2018 is the final year of the plan. The budget allocated to R&D investments for the three-year period totals 60 billion yen and targets the five market domains of "Infrastructure," "Energy," "Mobility," "Living environment," and "Electronics." We aim to create individualized businesses in these market domains and also speed up the development of high value-added products and services, thereby making social contribution on a global scale.

Based on the basic R&D policy, "Create new value by forging, polishing, and linking diverse individualized technologies," we reorganized the R&D sector in January 2016 in order to specify the target image of the Group in 2025. We are implementing specific measures with greater speed to get results as early as possible. Based on the various materials manufactured by the Showa Denko Group, including organic, inorganic, and aluminum materials, as well as on the advanced technologies to process these materials and long-accumulated strategic technologies, we will foster R&D on cross-departmental themes to meet a range of market needs and provide customers with new value.

In the following we introduce some of the R&D projects implemented under the leadership of the Institute for Integrated Product Development for the purpose of enhancing our core businesses and developing new businesses in peripheral fields. We will also show how the Institute for Advanced and Core Technology is working to deepen the Showa Denko Group's strategic technologies.

1. Enhancement of the core businesses/expansion of individualized businesses

We are carrying out demonstration tests for ammonia-based hydrogen stations, aqueous binders for the anodes of LIBs, and repairing materials to be used in cold and humid conditions in order to develop high-value added products that will assuredly help boost our profits.

Ammonia contains hydrogen at a high concentration and is expected to be used as an energy carrier. For ammonia-based hydrogen stations, we succeeded, ahead of others in the world, in developing a practical technology to manufacture out of ammonia high-purity hydrogen for use in fuel cell vehicles. At present, we are implementing a system demonstration test on the scale of 10 Nm³/h at the Kawasaki Plant.

As for aqueous binders for the anodes of LIBs, our in-house designed resin features are highly acclaimed and adopted widely by customers. We have begun developing a product with the grade and durability suitable for use in EVs, which will be further popularized in the future.

For repairing materials that help complete repair work within a shorter time even under harsh conditions and are intended for use in cold and humid settings, we have completed registration with the New Technology Information System (NETIS) implemented by

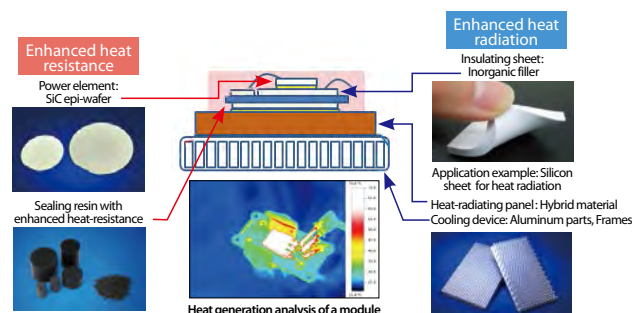
the Japanese Ministry of Land, Infrastructure, Transport and Tourism and are verifying the performance of the materials by using them on a trial basis for commercialization.



Trial use of the materials for the repair of the wet wall of a water conduit (Asahi Dam, Higashinagahara Plant)

2. Peripheral growth fields/heat solutions

In accordance with the electrification as well as downsizing and weight reduction of industrial equipment and automobiles, high-performance materials that provide heat solutions are increasingly needed. The Showa Denko Group supplies SiC epitaxial wafers for power semiconductors, heat-resistant sealing resin, inorganic fillers, aluminum composite materials, and other components that have excellent heat resistance and heat dissipation properties. Our customers have begun evaluating these products. We will develop high-end aluminum, plastic, and ceramic materials and components to meet the need of heat solutions for high-output and small-sized power modules and other products. Moreover, we will also combine the materials and components to provide multi-material components.



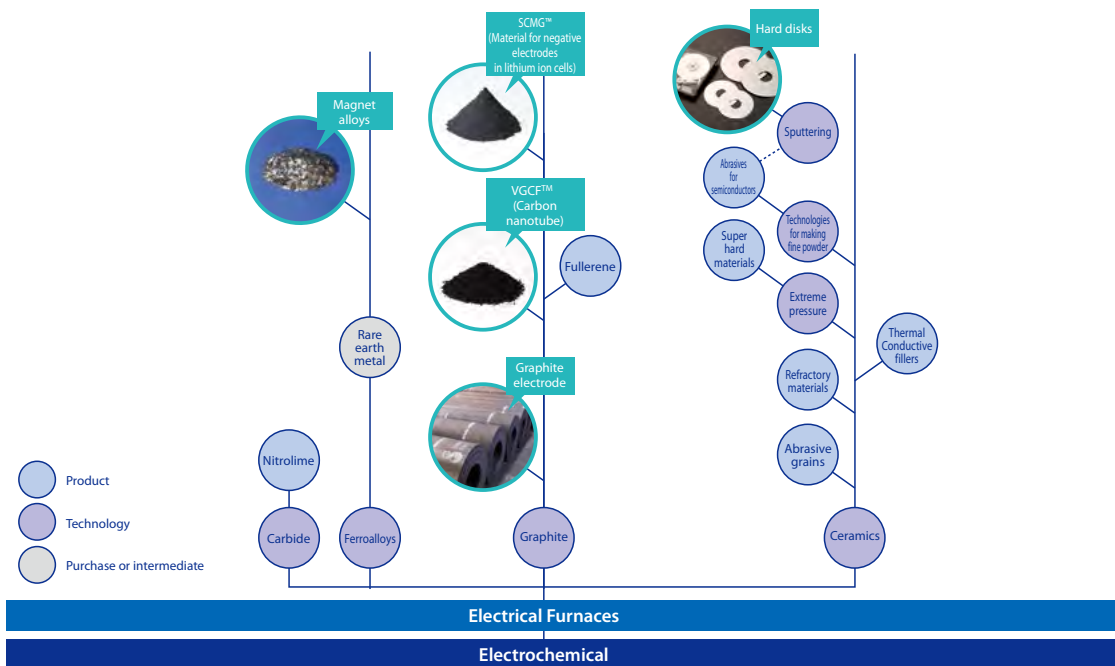
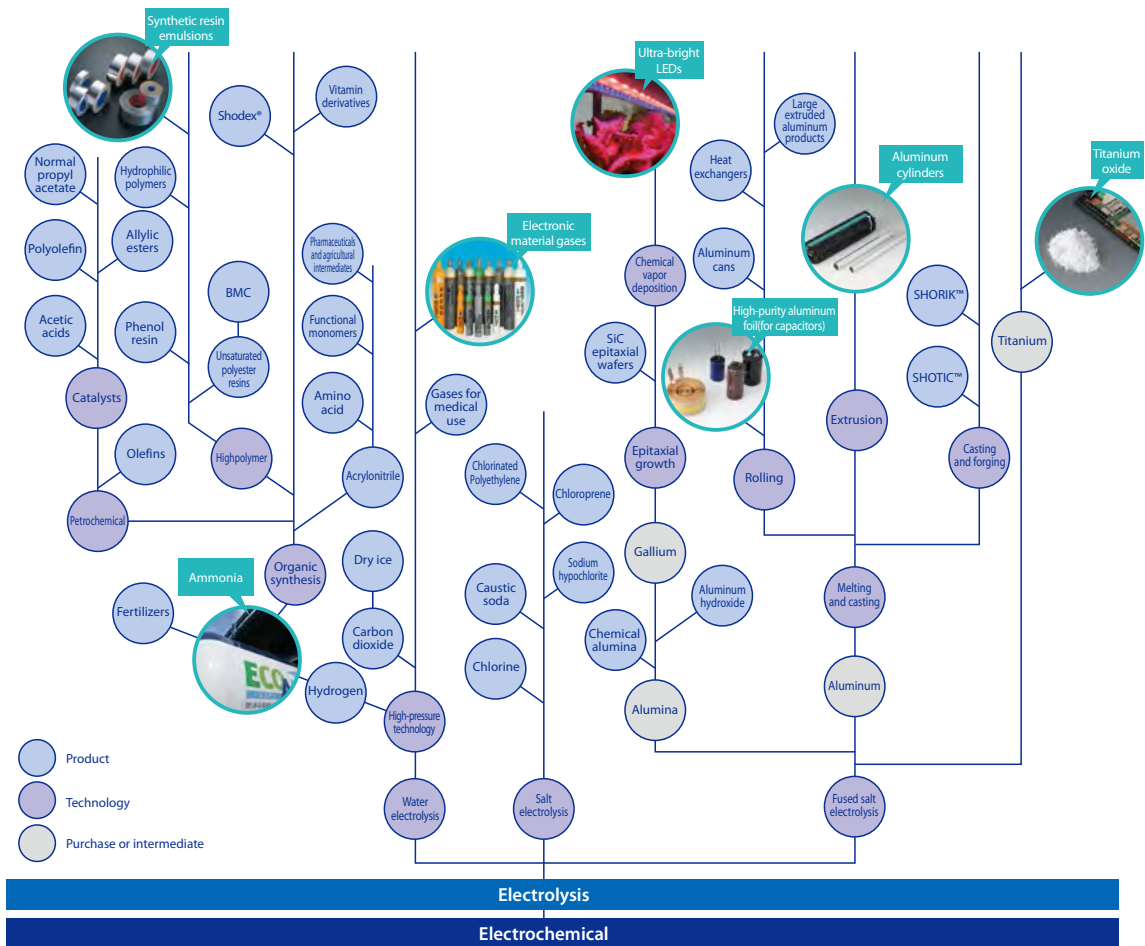
3. Strategic technologies/carbon materials

The Institute for Advanced and Core Technology is fostering the creation of individualized businesses by deepening the world's top-level strategic technologies based on a next-generation business model that is not derived from existing businesses.

For example, with fullerene, which is a carbon material that has a shape similar to that of a soccer ball, we explore its features and enhance the technology to develop fullerene derivatives and create thin fullerene films to expand its applications. Recently we have accelerated the use of the material for energy conservation purposes, including use in organic thin-film solar cells and in lubricating oil. We are also working to build the world's top-class mass production system for the stable supply of high-quality fullerene.



Technological Lineage



R&D of the Showa Denko Group

R&D activities for the creation of corporate value

Example: SiC epitaxial wafers for power semiconductors

Contributing to the sustainable development of society through the use of our products in final products

What is a power semiconductor?

Power semiconductors are used in inverters to convert direct current to alternating current and in converters to convert alternating current to direct current. Power semiconductors are widely used in the large equipment of power generation plants as well as in small devices, such as home electric appliances, for the easy and stable supply of electricity.

With the public becoming more interested in energy conservation and power saving, demand for power semiconductors, which help minimize the loss of power, has further expanded recently.

Presently, most power semiconductor devices are made by using silicon (Si) wafers as substrates, but silicon carbide (SiC) is widely

expected to replace Si as the wafer material.

Compared with mainstream Si semiconductor devices, SiC power semiconductor devices are excellent in terms of operability under high-current, high-voltage, and high-temperature conditions, while energy loss is reduced by 50% or more and the device size (volume) can be reduced to about one-fourth. The devices are therefore useful in downsizing and reducing the weight of power control modules while increasing their efficiency, and have already been adopted for use in power sources for data center servers, power conditioners for solar power generation, EV chargers, and in subway and other railroad vehicles.

The Showa Denko Group conducts the following activities for the business.

R&D

The Group aims to contribute to the solution of social issues and create new value in the five domains of "Infrastructure," "Energy," "Mobility," "Living environment," and "Electronics." To this end, we are conducting unique R&D activities by deepening and fusing our highly advantageous core technologies and our long-accumulated strategic technologies across a range of business segments in which we operate.

CSR procurement

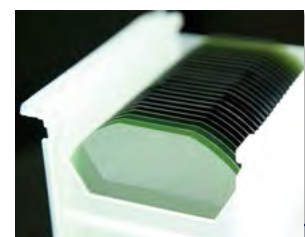
Showa Denko conducts business activities in consideration of society and the environment throughout its supply chain, from procurement of materials through to manufacture and sale.

Expanding the applications of power semiconductor devices

Two types of semiconductor devices are used in power modules that can be operated under high-voltage and high-current conditions: the Schottky barrier diode (SBD) device used to make the flow of electricity go one way and the metal-oxide-semiconductor field-effect transistor (MOSFET) device to control the flow of electricity. In the past, SiC epitaxial wafers were used to make SBD devices, which are structured in a relatively simple way. Power modules can work most effectively when both SBD and MOSFET devices are used in them. It was difficult to manufacture SiC epitaxial wafers for MOSFET devices, but Showa Denko overcame the problem and released its "High-Grade Epi (HGE)" wafers, which could be used to make MOSFET devices, in October 2015.

The HGE is rated at the industry's highest level in terms of low defect density on the surface and inside of the epitaxial film, control of the concentration of impurities to be mixed to control the flow of electricity, and the uniformity of the film thickness.

In 2017, we acquired technological assets related to SiC materials for power semiconductors from the Nippon Steel & Sumitomo Metal Corporation Group. We will also make use of these assets to further enhance our strength in the business and continue meeting the market needs.

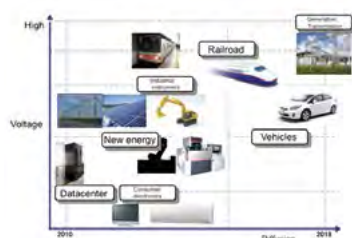


The Showa Denko Group conducts R&D and develops businesses by taking advantage of a range of technologies and products that it has developed for organics, inorganics, and aluminum.

In this section we introduce the achievements made by the Group for SiC epitaxial wafers for power semiconductors as an example of how the Group is heading toward the creation of corporate value.

Usage of SiC power semiconductor devices

SiC power semiconductor devices contribute to the efficient use of power, which in turn fosters energy conservation and the creation of a low-carbon society.



Roles played by the Showa Denko Group for SiC power semiconductors

SiC power semiconductor devices are made using SiC epitaxial wafers, which are substrates on which thin SiC films are overlaid using a process called "epitaxial growth." Epitaxial wafers tend to have defects, so films with low defect density are needed for the manufacture of power semiconductor devices. The Showa Denko Group boasts the world's leading technology for epitaxial growth.

Manufacture

Showa Denko manufactures its products in an environment-friendly manner, specifically by reducing environmental impacts, minimizing waste, and saving resources and energy.

Sales , Feedback

Responding to an increase in demand

We have devised better manufacturing processes, independently adjusted the equipment, and enhanced our skills for using the equipment so as to mass-produce high-quality HGE wafers in a stable manner. In order to meet the robust demand for the HGE wafers, we plan to enhance the production capacity to 7,000 wafers per month by September 2018 and to 9,000 wafers per month by February 2019. In addition to an increase in demand for conventional applications, SiC power semiconductor devices are increasingly needed for use in onboard EV chargers and in the equipment of quick charging stations in the rapidly expanding EV market.



Contribution to energy conservation

Silicon carbide (SiC) is superior to silicon (Si) in terms of its low electric resistance and usability under high-voltage and high-temperature conditions. SiC power semiconductor devices were therefore said to represent a next-generation, epoch-making energy-saving device. However, the market was not easily launched, not only due to cost-related problems but also because high-quality SiC epitaxial wafers needed to make the semiconductor devices were unavailable. Showa Denko eventually succeeded in developing the large and high-quality HGE wafers, which were rated at the industry's highest level in terms of quality.

These days, the applications of SiC power semiconductor devices are rapidly expanding, including use in railroad vehicles, photovoltaic devices, and EV chargers. The market size is expected to grow to 150 billion yen in 2023. Showa Denko had been engaged in the SiC epitaxial wafer business since 2005, and this wafer project, which had been a project implemented within the R&D organization, was placed under the direct control of the president in 2017.

By further expanding the sales of the business under the project, the business is expected to become an individualized business, that is, one that has a high operating income margin, a certain level of operating income, and tolerance to changes in the market environment.

We will continue to contribute to energy conservation by meeting the market needs for higher quality while responding to expanding demand in the business.

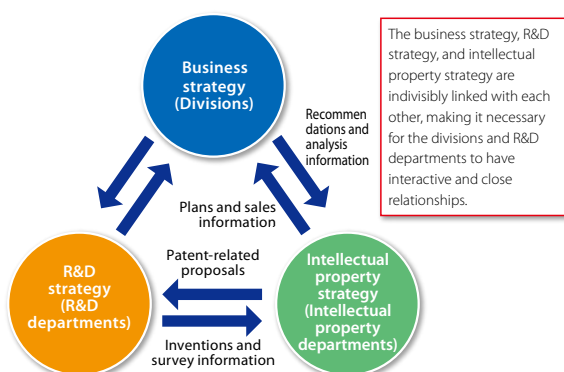


Manager, Power
Semiconductor Project
Takayuki Sato

R&D of the Showa Denko Group

Protection of intellectual property rights

Showa Denko regards the intellectual property strategy as one of its crucial management strategies and is building and implementing it along with the business strategy and R&D strategy as a trinity. We are eternally committed to establishing a strong and wide-ranging patent network for our major businesses and the development of important products to ensure our competitiveness.



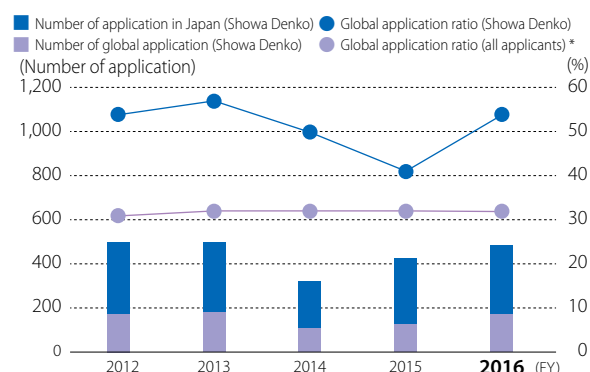
Acquisition of intellectual property rights and establishment of patent networks

As the majority of Showa Denko's businesses are operated globally, we aggressively apply for patents in foreign countries with the aim of supporting those businesses from the intellectual property side.

The chart shown below is a composition of data shown in "Japan Patent Office Annual Report 2016" and SDK's own data on the number of applications for patents. It illustrates that the Showa Denko's global application ratios were about 10% higher than those by all applicants.

We also make every effort to secure our superiority based on intellectual property rights, especially in the principal businesses and newly developed important products by establishing patent networks.

Trend of patent application ratio in Japan and abroad



* According to our research

In recognition of these measures, Showa Denko was included in "The Clarivate Analytics 2017 Top 100 Global Innovators" as one of the companies and organizations leading global business. We have received this honor for three years in a row.

In Our Code of Conduct and Its Practical Guide, we uphold "Respect for other parties' intellectual property rights" as one of our rules. To this end, we built a patent monitoring system to keep track of trends in the intellectual property rights of others, including patents held outside Japan. Moreover, we are proactively working to protect our trade secrets and copyrights.

2017
TOP 100
GLOBAL
INNOVATORS

In-house awarding system to commend employee inventions

When applying for and registering a patent as well as when using or licensing a patent, we pay compensation to the individual inventor in line with the predefined rules. In order to promote the filing of more valuable patent applications, we commend our top three employees in terms of number of patent applications filed in the previous year and also the top three employees in terms of the number of patents registered in the previous year. In 2016 we established the Patent Hall of Fame, and two employees, whose patent filings and inventions each totaled 300 or more, entered the Patent Hall of Fame.



Ceremony held to commend the internal inventors ranked in the top three (2017)

Governance



Policies and procedures for the Board of Directors in determining the remuneration of senior management personnel and Directors

Showa Denko has newly introduced performance-linked stock-based remuneration, and the remuneration of Executive Directors and Corporate Officers now consists of base remuneration, which is decided according to job title and others, as well as short-term performance-linked remuneration and mid- to long-term performance-linked remuneration, which are determined in consideration of corporate and individual performance and others under the performance evaluation system.

The Remuneration Advisory Committee as an advisory body to the Board of Directors and a majority of its members are Independent Outside Directors and Outside Audit & Supervisory Board Members. It deliberates the remuneration of each Executive Director and Corporate Officer and submits recommendations to the Board of Directors. Remuneration of Outside Directors consists of base remuneration only.

The amount of remuneration paid to Directors and Audit & Supervisory Board Members in 2017 is as given below.

	Total amount of remuneration	Number of persons
Directors (except outside Directors)	¥231 million	10
Audit & Supervisory Board Members (except outside Auditors)	¥55 million	3
Outside Directors and Outside Auditors	¥68 million	6

Overview of Governing Bodies/ Committees/Councils

Governing Body	Members	Meeting frequency
Board of Directors	9 members (Three of them are outside directors.) (As of March 2018) Chairperson: Chairman of the Board	Once or twice a month (The board had 15 meetings in 2017. The average rate of attendance was 98.6%.)
Management Committee	President, Corporate Officers in Charge, and other Corporate Officers and General Managers of Staff Departments as deemed necessary by the President Chairperson: President	Once a week in principle
CSR Committee	Same as above	Twice a year in principle
Board of Auditors	5 Auditors (Three of them are outside Auditors. (One is female.))	

Board of Directors

Showa Denko introduced the corporate officers system to clearly separate the business execution function from the management supervision function. Under the system, a top management team composed of the president and corporate officers makes prompt and dynamic decisions on management. At the same time, the number of Board of Directors members has been substantially reduced while the number of independent outside directors has been kept at two or more for the enhancement of the supervision function.

The Board of Directors decides basic policies of the Company. It also thoroughly discusses and makes decisions regarding matters specified in the Companies Act or the Company's Articles of Incorporation as well as important issues in executing business operations, while promoting prompt and dynamic decision making on management.

We appoint directors with emphasis on the viewpoint of corporate governance, aiming to strengthen the Board of Directors' monitoring and supervisory functions and ensure the propriety of decision making process. We have adopted a management system in which corporate officers dedicate themselves to business execution, which is their primary duty, but do not concurrently serve as directors, in principle.

Furthermore, we have abolished the system of officer directors except the Chairman and the President, while strengthening monitoring by Auditors including outside Auditors and mutual supervision among directors.

The term of office of directors is set to one year to ensure a quick and flexible formation of management team corresponding to changes in the business environment.

Board of Auditors

Showa Denko employs an auditor system. The Auditors attend the Board of Directors meetings and other important internal meetings, offering opinions as necessary. They conduct audits on execution of business operations through on-site investigations, interviews with responsible persons, and reference to important documents so as to provide suggestions, advice, and recommendations for securing soundness in management. They also audit group companies in cooperation with auditors of major affiliated companies

Corporate Governance

Accounting audits

Showa Denko concluded an auditing contract with KPMG AZSA, and this audit corporation performs accounting audits for the Company.

The Accounting Auditor confirms the annual audit plan with the Auditors and reports the audit results to them. The Accounting Auditor and the Auditors also exchange information and views as required, to promote their cooperation.

Management Committee and R&D Committee

The Management Committee, which is chaired by the President, deliberates and decides on matters to be referred to the Board of Directors' meetings and important matters pertaining to overall management of the Company. The decisions are made after deliberations on two occasions. As for the investment issues to be submitted to the Management Committee, risk analysis as well as achievement/progress management are conducted in advance, through preliminary risk reviews and examinations by a relevant task team. The basic business policies including Company's medium-term business plans are decided not only through the deliberation of the Management Committee but also through sufficient examination by all corporate officers.

The R&D Committee deliberates and makes decisions on important issues related to research and development.

Internal Audit Department

We have the Internal Audit Department reporting directly to the President. The Internal Audit Department investigates the overall execution of business including group companies and verifies its accuracy, validity and efficiency. It also investigates and verifies the functional state of management policies, business plans and internal control systems.

The results of internal auditing are also reported to the Auditors for mutual cooperation with Auditors' auditing.

CSR Committee

Showa Denko positions CSR Committee at the top level of our corporate governance system to check all management measures from the CSR perspective. We also established the Security Export Control Committee and Safety Measures Committee under the CSR Committee. Moreover, we set up Responsible Care Promotion Council, Risk Management Promotion Council, Human Rights/Corporate Ethics Promotion Council and IR Promotion Council to deliberate on the respective matters.

Responsible Care Promotion Council

Under the CSR Committee, Showa Denko established the Responsible Care Promotion Council for preliminary discussions concerning important issues around Responsible Care. (For related measures, please also see page 48.)

Risk Management Promotion Council

We have established a risk management system around the CRO (Chief Risk Officer). Important risk-related matters are deliberated by the Risk Management Promotion Council and determined by the CSR Committee.



Committed to winning the confidence of stakeholders in a sustainable manner

Director Corporate officer and CRO
Keiichi Kamiguchi

The Showa Denko Group has a risk management system led by the Chief Risk Officer (CRO). Meanwhile, the importance of corporate governance in the wider world has further increased in the face of a series of corporate scandals that have occurred recently.

Regarding the business results for 2017, we deeply apologize to our shareholders and other stakeholders for the concerns and problems caused by the delay of the announcement of the results. The delay occurred because it took us time to make a detailed examination of the transactions related to Shoko Co., Ltd., one of Showa Denko's subsidiaries. Showa Denko will fully support Shoko in implementing improvement measures and will further enhance its internal control, deeming the strengthening of its risk management functions a management priority for the entire Group. The Showa Denko Group

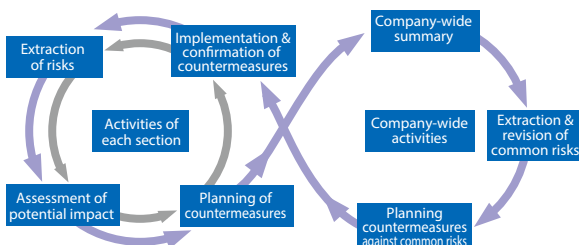
faces various risks related to compliance, occupational safety, product quality, and its business activities and is required to minimize both the risks themselves and the impacts that might be felt over the Group if any of them were to materialize.

The Showa Denko Group deems "compliance with social and corporate ethical norms" a top management priority and fosters compliance-based management. We will promote a corporate culture that helps increase the alertness of all Group employees to safety, compliance, and corporate ethics and encourages them to make quick responses and conduct improvement activities for better risk management.

Risk inventory

Our Group has been conducting risk inventory every year, including its overseas bases. Risk inventory is conducted in the order of (1) extraction of risks, (2) assessment of potential impact, (3) planning of countermeasures, and (4) implementation and confirmation of countermeasures. It is important to identify all risks without omission. This year we set items on which we would focus in the identification of risks, such as "information leakage," and made a risk inventory in reference to the items.

► Risk inventory flow chart



TOPIC

Information security risks

The Showa Denko Group has its own Information Security Regulations and Personal Information Protection Guidelines to assist it in dealing appropriately with information-related risks. We also take every opportunity to help all employees understand these rules and raise security awareness among them through e-learning and Cyber Security Month activities. We are continuously enhancing information security also at our Group companies outside Japan.

As for targeted attacks, which have recently been posing a threat, we are collecting the latest information by participating in the activities of the Japan Chemical Industry Association and the Japan Petrochemical Industry Association. Further, we regularly conduct drills to reduce related risks by raising employee awareness.

Moreover, in 2018 we began measures to enhance our cyber security system.

Corporate Governance

Human Rights / Corporate Ethics Promotion Council

The Showa Denko Group considers “compliance with social justice and corporate ethical norms” to be one of its most important management priorities. It regards human rights as the core theme of corporate ethics. The Human Rights/Corporate Ethics Promotion Council chaired by the CRO determines the medium- to long-term principles and makes annual plans for the activities related to human rights and corporate ethics, with an eye to raising awareness among all Group employees. (For related measures, please also see page 62.)

IR Promotion Council

The IR Promotion Council is chaired by the CFO. The Council examines the comprehensive measures and basic plans for IR, centrally manages the important factual data, such as the financial results, in line with the Tokyo Stock Exchange's timely disclosure rules, and ensures the appropriate disclosure of important facts.

Showa Denko conducts information disclosure and IR activities to help shareholders and investors deepen their understanding of its corporate management, business activities, and strategies so that they can evaluate its corporate value in an appropriate manner. To this end, we work to communicate proactively with shareholders and investors, improve management transparency, and strive to disclose information concerning Showa Denko in an easy-to-understand, fair, timely, and accurate manner. In April 2018, the Revised Financial Instruments and Exchange Act was enforced in Japan, and to ensure compliance with the fair disclosure rules of this law, we revised our disclosure policy and made it public on our website.

TOPIC

Recognition of our IR activities

Showa Denko was rated highly in the selection of Awards for Excellence in Corporate Disclosure by securities analysts of the Securities Analysts Association of Japan. Moreover, our IR site was named an excellent website by Nikko Investor Relations in its Website Quality Ranking and received the Internet IR Commendation Award from Daiwa Investor Relations and the bronze prize in the Gomez IR Site Ranking from Morningstar.

ESG indexes adopting Showa Denko



Security export control Committee

For all export products, Showa Denko's Security Export Control Committee, established under the CSR Committee, determines whether or not government permission is required, investigates customers, and makes a decision on whether to enter into each transaction through systematized procedures.

Safety Measures Committee

We also established the Safety Measures Committee under the CSR Committee. Showa Denko examines comprehensive measures and basic plans for the environment, safety, and health, and offers relevant opinions to the related agencies.

Board of Directors/Audit & Supervisory Board

Board of Directors



Kiyoshi Nishioka * Keiichi Kamiguchi Representative Director, Chairman of the Board Hideo Ichikawa Hidehito Takahashi Masaharu Oshima *
 Tomofumi Akiyama * Jun Tanaka Representative Director, President Kohei Morikawa Toshiharu Kato *Outside Members

Audit & Supervisory Board



Setsu Onishi * Hiroyuki Tezuka * Saburo Muto Tetsu Moriki Kiyomi Saito * *Outside Members

Board of Directors

Representative Director, Chairman of the Board

Hideo Ichikawa

Representative Director, President

Kohei Morikawa

Chief Executive Officer

Managing Corporate Officers

Jun Tanaka

Chief Technical Officer (CTO);

Officer in charge of Electronic Chemicals and Functional Chemicals Divisions, Business Development Center, Higashinagahara, Isesaki and Tatsuno plants, and Corporate R&D and Intellectual Property departments

Hidehito Takahashi

General Manager, Carbon Division;

Officer in charge of Ceramics Division and Corporate Strategy Department

Corporate Officers

Keiichi Kamiguchi

Chief Risk Management Officer(CRO);

Officer in charge of Internal Audit, Legal, General Affairs & Human Resources, and Purchasing & SCM departments; Chairman of Security Export Control Committee

Toshiharu Kato

Chief Financial Officer(CFO);

Officer in charge of Finance & Accounting and Information Systems departments

Outside Member

Tomofumi Akiyama

Masaharu Oshima

Kiyoshi Nishioka

Audit & Supervisory Board Members

Saburo Muto

Tetsu Moriki

Outside Member

Hiroyuki Tezuka

Kiyomi Saito

Setsu Onishi

Corporate Officers

Senior Managing Corporate Officer

Jiro Ishikawa

General Manager, HD Division;

Officer in charge of Electronics Materials and Advanced Battery Materials divisions, and Power Semiconductor Project

Corporate Officer

Kanji Takasaki

Officer in charge of Aluminum Rolled Products, Aluminum Specialty Components, and Aluminum Can divisions, and Oyama and Kitakata plants

Youichi Takeuchi

Oita Complex Representative

Takayuki Sato

General Manager, Electronics Materials Division;

General Manager, Marketing Department, Electronics Materials Division;

Manager, Power Semiconductor Project; Officer in charge of Chichibu Plant

Motohiro Takeuchi

General Manager, Corporate Strategy Department

Taichi Nagai

General Manager, Production Technology Department;

Officer in charge of Energy & Electricity, SPS Innovation and CSR departments; Chairman of Safety Measures Committee

Koichi Nishimura

General Manager, Industrial Gas Division;

Officer in charge of Basic Chemicals Division and Kawasaki Plant;

President, Showa Denko Gas Products Co., Ltd.

Masamichi Yagishita

General Manager, Electronic Chemicals Division;

Officer in charge of Tokuyama Plant

Masunori Kaiho

General Manager, Kawasaki Plant

Hiroshi Daio

General Manager, Ceramics Division;

Manager, Alumina Project ; Officer in charge of Yokohama and Shiojiri plants

Takuji Yamamoto

Assistant to President in charge of AI Strategy Planning

Masao Shibuya

General Manager, Advanced Battery Materials Division

Akihiro Jimbo

General Manager, Basic Chemicals Division

Tetsuo Wada

General Manager, Business Development Center and Institute for Integrated Product Development

Hirotsugu Fukuda

General Manager, Petrochemicals Division;

General Manager, Olefins Department, Petrochemicals Division;

Officer in charge of Oita Complex

Klaus Unterharnscheidt

President, SHOWA DENKO CARBON Holding GmbH

CSR

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CSR Management of Showa Denko

Message from CSR Officer



Corporate Officer

Taichi Nagai

Making CSR activities a part of our corporate culture

The Showa Denko Group is committed to fulfilling its corporate social responsibility (CSR) by implementing measures to become a “company contributing to the sound growth of society” toward creating a society where affluence and sustainability are harmonized. To this end, we are working to raise individual employees’ awareness of CSR and to make CSR activities a part of the Group’s culture.

Safe and stable operation provides the basis for our business

The Showa Denko Group, which is a chemical manufacturer, gives first priority to safety, deeming it the basis for its business. Based on this recognition we launched the Active Safety activities* in 2007. We will further enhance the activities to prevent occupational accidents, equipment-related incidents, and environmental problems in a steady manner.

We are also conducting Responsible Care activities to give due consideration to the environment, safety, and human health throughout the life cycle of chemical substances, including at the development, manufacture, disposal, and recycling stages.

The activities comprise a core part of the Group’s CSR activities. We will step up our Responsible Care, Active Safety, and other activities in the four fields of “Safety and disaster prevention,” “Occupational safety and health,” “Chemical substance safety,” and “Environmental safety” to provide society and customers with products, technologies, and services that meet their needs in a safe and stable manner for use with peace of mind.

* Active Safety activities: The Showa Denko Group’s unique activities in which we analyze past accidents and problems, and take measures to prevent their recurrence.

Toward the creation of a sustainable society

The Sustainable Development Goals (SDGs) are composed of 17 goals to be attained by the international community by 2030 to meet global social challenges. The SDGs target all countries and are intended to create a society where “no one is left behind.” For the SDGs, greater public attention has been focused on measures implemented by companies. The Showa Denko Group has been supplying “products and services that are useful and safe and exceed our customers’ expectations.” Toward the creation of a sustainable society, we will continue to contribute to the solution of global social issues, including climate change, depletion of resources, demographic changes, urbanization, multipolarization of the world economy, and changes in the feedstock/energy-resources market.

Promoting dialogue with stakeholders

The public has recently been paying more attention to environmental, social, and governance (ESG) measures taken by companies. Amid rapid changes in the social and economic environment, we need to meet the expectations of all stakeholders, for which we assuredly need to foster direct dialogue with stakeholders and identify what they expect of the Showa Denko Group. We will attach importance not only to IR-related dialogues but also to dialogues with Group employees in charge of CSR activities in Japan and abroad. We will foster constructive dialogues with stakeholders through the Group’s aluminum can recycling and local community contribution activities, thereby raising individual employees’ CSR awareness and improving the quality of our CSR activities.

CSR Policy

Given our currently promoted medium-term consolidated business plan Project 2020+, the Showa Denko Group aims to “contribute toward creating a society where affluence and sustainability are harmonized” while conducting business in such a way that our products and technologies contribute to solving social issues including the topics of global environment, energy, and resources.

During Project 2020+, we will focus on the issues of “responsible care,” “risk management and environment-conscious business management,” “corporate ethics and compliance,” and “dialogue with stakeholders,” as well as the materiality issues selected.

At the Showa Denko Group, CSR is regarded as the responsibility of each and every employee. All employees are thus expected to behave with integrity and in conformity with “Our Vision” and “Our Code of Conduct” and to contribute to society through business activities.

With its products, technologies and services, the Group will contribute to creating a society where affluence and sustainability are harmonized.

medium-term consolidated business plan

PROJECT 2020+

We contribute to creating a society where affluence and sustainability are harmonized.

CSR policies for 2016 to 2018

All employees are thus expected to behave with integrity and in conformity with “Our Vision” and “Our Code of Conduct” and to contribute to society through business activities.

- | | |
|---|---|
| <p>(1) Realize safe and stable operations as well as sustainable development.</p> <ul style="list-style-type: none"> - Consolidate the business foundation in a way that is compatible with low-carbon society. - Contribute to CO₂ emission reduction and resource recycling. | <p>(2) Ensure strict compliance with legislation and observe social and corporate ethical norms.</p> <p>(3) Promote dialogue with stakeholders.</p> |
|---|---|

CSR promotion Framework

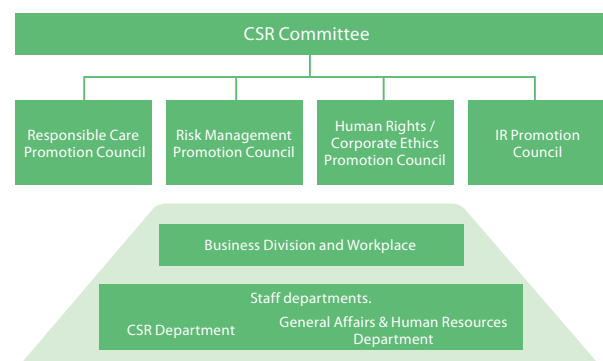
Our group has established the CSR Committee composed of the members of the Management Council, which serves as a framework to associate business measures with CSR. Under the CSR Committee, we established the Responsible Care Promotion Council, Risk Management Promotion Council, Human Rights/Corporate Ethics Promotion Council, and the IR Promotion Council. These councils plan and propose individual topics related to CSR as well as discuss matters to be presented to the CSR Committee.

In addition, the Group has a framework where the CSR Department, Environment & Safety Office, Quality Assurance Office, General Affairs & Human Resources Department, and the Public Relations Office assist each business division and workplace perform various CSR activities such as those for human rights, corporate ethics and compliance, risk management, Responsible Care and other matters as staff departments.

The CSR Department functions as the secretariat of the CSR Committee, plans and summarizes basic policies and comprehensive measures regarding CSR. The department also collects CSR related information and supervises risk management in our group. We have

established the Environment & Safety Office and the Quality Assurance Office under the CSR Department in order to promote Responsible.

► CSR promotion Framework



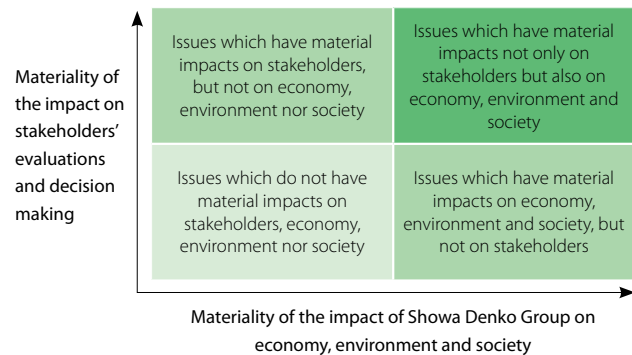
CSR Management of Showa Denko

Materiality of issues of the Showa Denko Group

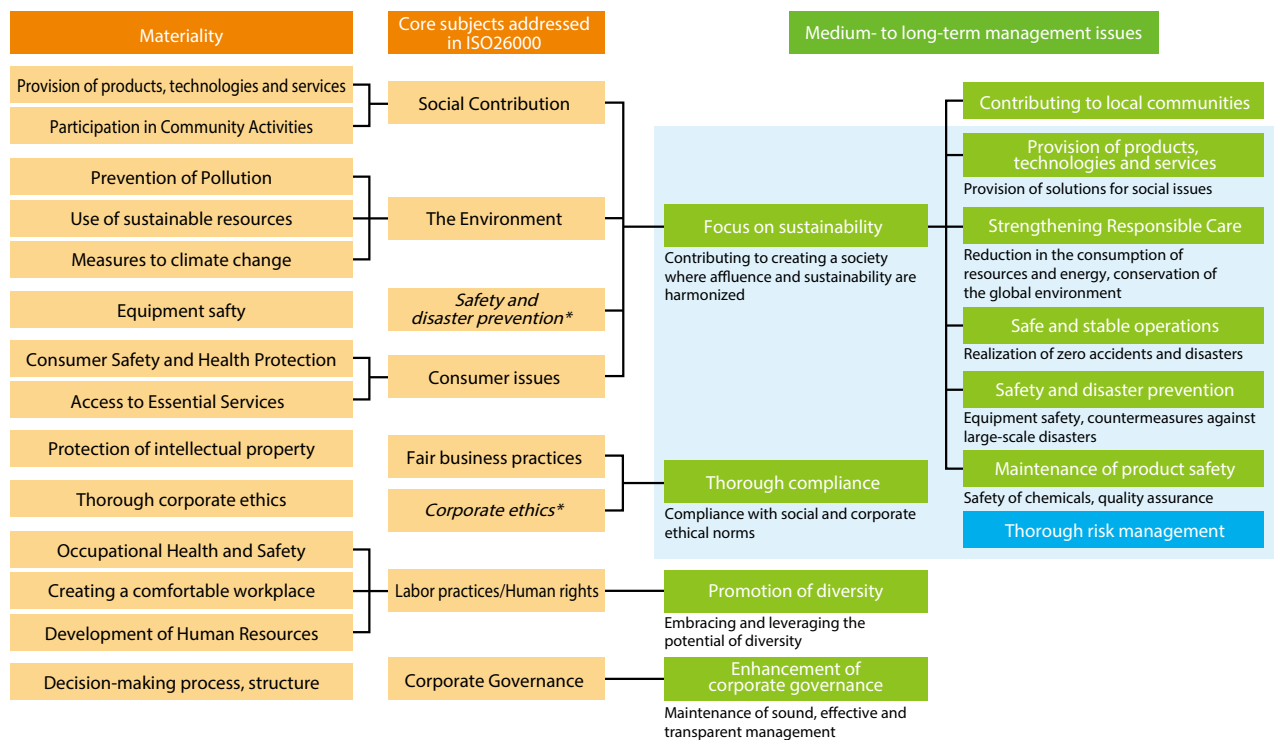
Aiming to contribute to realization of sustainable society, the Showa Denko Group analyzes materiality of impacts of its business activities on stakeholders, economy, society and environment, and selects 14 material issues.

The material issues selected are aligned with the Group's medium-to long-term management issues.

The diagram below shows how each of material issues of the Group and core issues of ISO 26,000 listed in the left part is correlated to each medium- to long-term issue of the Group in the right part. This diagram was also included in a Group newsletter to ensure that all employees across the Group understand the correlation.



Relations between Medium- to long-term management issues and Materiality

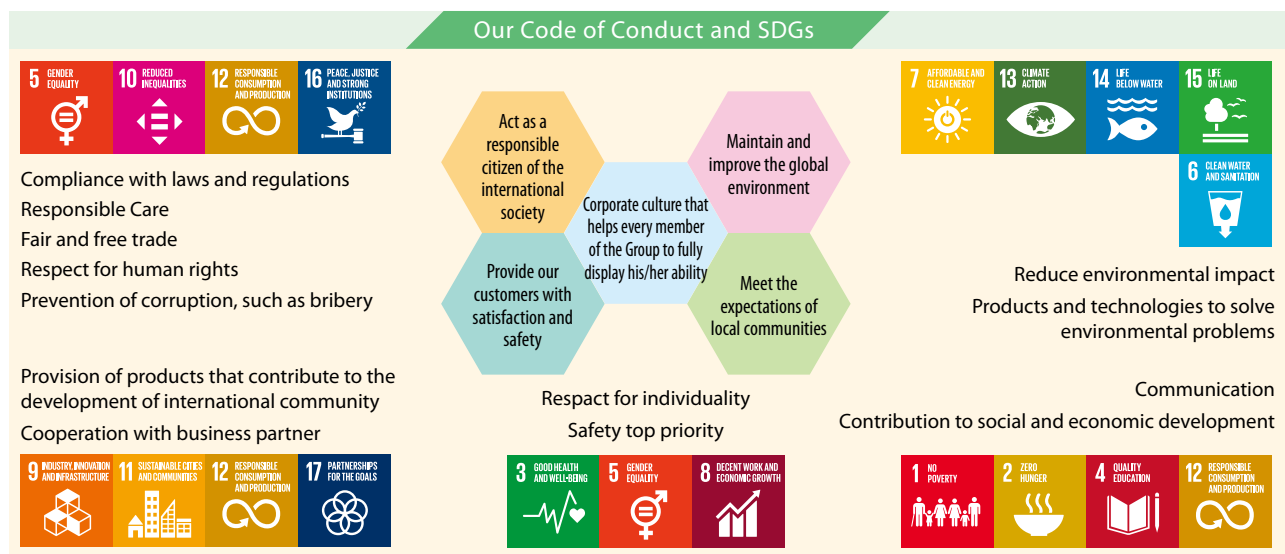


*The issues in italics are not included in the core subjects of ISO 26000, but are listed here because they are considered to be important to the Group.

Showa Denko Group's activities to achieve SDGs

Based on "Our Vision," the Showa Denko Group promises as follows in "Our Code of Conduct": we will act with integrity as a responsible citizen of the international society; provide our customers with satisfaction and safety; develop corporate culture that helps every member of the Group to fully display his/her ability; meet the expectations of local communities; and make vigorous efforts to maintain and improve the global environment.

These promises are in accord with the ideas proposed in the Sustainable Development Goals (SDGs), which are universal goals to be attained by 2030 for all people and include eradicating all forms of poverty, fighting against unfairness, and combating climate change to "leave no one behind."



The following shows the Showa Denko Group's specific measures taken for the SDGs.

Awareness-raising activity

The Showa Denko Group introduces information about the relationships between the Group and the SDGs in its Group magazine to help individual employees understand the significance of the SDGs and encourage them to work toward their attainment.

Group News (Intranet)

Utilization of our own hydroelectric power stations

The Showa Denko Group owns and operates hydroelectric power stations at four of its plants: the Omachi, Shiojiri, Chichibu, and Higashinagahara Plants. The amount of CO₂ emitted from hydroelectric power generation is much smaller than that emitted by thermal power generation or other power generation methods.

From 2015 to 2017 we replaced old equipment with new models at all of our hydroelectric power stations to ensure the stable supply of electricity and increase the efficiency of our power generation.

Tokiwa Hydroelectric Power Plant (Omachi Plant)

Chemical recycling of used plastics

The Kawasaki Plant of Showa Denko K.K. has been chemically recycling used plastics into hydrogen since 2003 in order to ensure the stable supply of hydrogen as a material for ammonia.

Across the world, ammonia is produced in greater quantities than any other chemically synthesized product. It is mainly used as a material for fertilizer, synthetic fiber, and resin, and for the denitration of air pollutants emitted from thermal power plants and others.

The recycling of used plastics into hydrogen helps reduce the consumption of fossil fuels. Moreover, by-products generated from the recycling process are effectively used as resources, including the recycling of CO₂ into dry ice. This chemical recycling thus greatly contributes to the reduction of environmental impacts compared with the conventional hydrogen manufacturing method.

Kawasaki Plastic Recycle plant

Stakeholder communications

Stakeholder communications

The Showa Denko Group wants to be a company that fulfills our social responsibilities for all stakeholders and a company that is trusted and appreciated by them. We will clarify our responsibilities for all stakeholders, understand their expectations and issues regarding our group through communication, and reflect the results in our corporate activities.



Let us introduce specific examples of communication with stakeholders.

Case 1

Communicated with shareholders and investors

We position the general meeting of shareholders as the golden opportunity for communication with shareholders. In order for more shareholders to exercise their voting rights, we enabled the shareholders who were not able to attend the meeting to exercise their votes by means of mail or the Internet.

For institutional investors and securities analysts in Japan, we held briefing sessions on our financial results and progress with the management plans and major businesses, while also responding to individual inquiries and questions.

For institutional investors and shareholders outside Japan, we fostered the disclosure of information in English to ensure fair disclosure. The president and CFO also visited Europe, North America, and Asia to explain the financial results and management plans directly to them.

We also held briefing sessions for individual investors and visited the branches of securities firms to provide explanations to these investors.

Moreover, we expanded the online information dispatch functions, provided the financial results and other IR news email service, and posted a summary of major financial performance data and related explanations on the website.



Exhibited graphic panels at the lobby of general meeting of shareholders (Mar.2018)



Briefing session for individual investors (Sep.2018)

Case 2

Local communities and authorities

We also issue a newsletter on activities conducted by our bases, organize plant tours for local residents, and give support to local cultural and sports promotion as a means of fostering communication with local communities.

We also contribute to local community through welfare-related and other activities.



Great East Japan Earthquake reconstruction aid activity (Head Office, Showa Denko K.K.)



Showa Denko HD Yamagata's employees participate "Higashine Sakuranbo Marathon" as volunteers every year. (Jun.2017)

Case 3

Employees and their families

The Showa Denko Group dispatches a range of information to Group employees.

The Showa Denko Group also fosters good communication with employees by conducting employee surveys and providing a corporate ethics hotline service.

We also organize tours of Group facilities for employees' families to help them deepen their understanding of the Group. Furthermore, in 2018, we published a special corporate brochure for the families of employees.



Family tour (Yokohama Plant, Showa Denko K.K.) (August.2017)

Highlights of CSR Activities



(Top Right) Futo Elementary school, Ito City, Shizuoka Prefecture
(Left, Lower Right) Asunaro, Nasukarasuyama City, Tochigi Prefecture

Interaction with Stakeholders

Example: Aluminum can recycling activity

Recycling activity continued over 40 years

The Showa Denko Group's aluminum can collection activity started in 1972, when the former Showa Aluminum Corp. (SAK) asked employees to recycle aluminum cans. Subsequently, in 1981, SAK began purchasing aluminum cans directly from local residents at two sites in Oyama (Tochigi Prefecture) and Sakai (Osaka Prefecture) and in 1990 expanded the activity to the head office and all its plants. Meanwhile, Showa Aluminum Can Corp. (SAC) founded Showa Aluminum Can Recycling Center Co., Ltd. in 1995 to foster the recycling of aluminum cans as a business. After SAK was merged with Showa Denko K.K. in 2001, the recycling activity was expanded across the Group and in 2013 we were commended by the Japanese Minister of Economy, Trade and Industry for our contribution to the promotion of the 3Rs.

History of aluminum recycling by the Showa Denko Group

	Event
1971	SAC became the first manufacturer of aluminum beer cans in Japan.
1972	SAK asked its employees to recycle aluminum cans.
1973	The first president of SAC led the establishment of an association to collect aluminum cans (presently Japan Aluminum Can Recycling Association).
1981	SAK's two sites in Sakai and Oyama began collecting empty aluminum cans from local residents who volunteered to participate in the activity.
1990	SAK began to conduct the aluminum can recycling activity on a company-wide basis.
1995	SAC established Showa Aluminum Can Recycling Center Co., Ltd. for "CAN to CAN" recycling.
2001	SAK was merged with Showa Denko K.K. and SAK's aluminum can recycling activity was expanded to the sites and affiliates of the former Showa Denko K.K.
2013	Received commendation from the Japanese Minister of Economy, Trade and Industry for contribution to the promotion of the 3Rs.

Benefits

of recycling aluminum cans

The recycling of aluminum cans provides the following benefits:

1 Energy conservation

By recycling collected aluminum cans into aluminum metal, you can save 97% of the energy that would be used for the manufacture of aluminum metal from bauxite. The amount of energy saved is roughly equivalent to the amount of electricity consumed by Japanese households over a 15-day period.

2 Waste reduction

About 70% of used aluminum cans are recycled into new aluminum cans.

3 Resource saving

Recycling helps reduce the amount of bauxite used for aluminum manufacturing.

"CAN to CAN" recycling

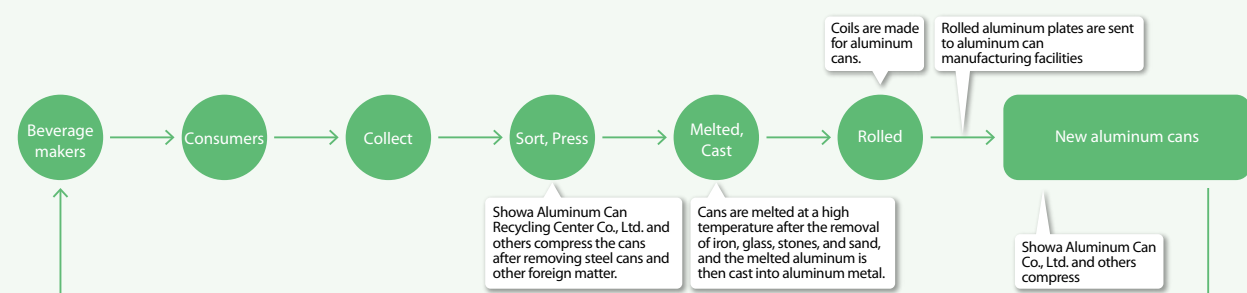
Presently, Showa Aluminum Can Recycling Center Co., Ltd. has sites to collect, sort, and press aluminum cans in Oyama and Hikone (Shiga Prefecture). The pressed cans are then melted, cast, and rolled into new aluminum cans by Showa Aluminum Can Corp ("CAN to CAN" recycling).

Aluminum cans are recycled as a CSR activity unique to the Showa

Denko Group. To maintain and even increase the number of cans collected, we are continuing to conduct employee awareness-raising and educational activities while asking external organizations including partner companies to cooperate in the collection of cans.

Flow for aluminum can recycling

Recycling only one material makes the process easier.



Stakeholder's VOICE

Japan Aluminum Can Recycling Association

Executive managing director
Mr. Natsuki Moriguchi



In Japan, beverage aluminum cans began to be produced in 1971, when there was no aluminum can collection channels. However, based on the recognition that aluminum cans should not be wasted and should instead be used as a precious resource, an association to recycle aluminum cans was established in 1973 under the leadership of the first president of Showa Aluminum Can Corp. This marked the beginning of the Japan Aluminum Can Recycling Association.

Aluminum cans are recycled to save resources and energy. In 1977, when we began conducting surveys for aluminum recycling, the aluminum can recycling rate was as low as 17.2%. However, the rate increased to 80% in 2000 and 90% in 2005 as a result of a range of recycling promotion efforts. Presently, lots of people participate in the recycling of aluminum cans,

partially because the cans are traded for money and the proceeds can be used for the activities of their organizations but also because it is widely recognized that recycling contributes to waste reduction and the effective use of resources.

The Japan Aluminum Can Recycling Association will continue to support recycling in the hope that even more people will participate in the activity.

As for the Showa Denko Group's activities, I think that there are many people who do not know that the Group manufactures aluminum cans and conducts aluminum can recycling activities. I would encourage the Group to publicize these facts more proactively.

Comments from employees participating in the recycling activity

The Osaka Branch of Showa Denko K.K. is located in a business district and all its employees commute to the branch by train. The team members in charge of the activity at the branch have all proposed ideas to increase the employee participation rate and the number of aluminum cans collected. For example, we asked the beverage vendor to make more canned beverages available for sale via the vending machines installed at the branch. We also regularly held meetings to exchange information about the recycling activity and collected the empty cans of beverages drunk by participants in the meetings for recycling. (Osaka Branch of Showa Denko K.K.)

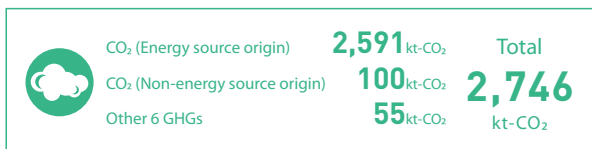
Showa Denko Aluminum Trading K.K. has increased the rate of employees participating in its recycling activity and the number of aluminum cans collected by sending emails from the in-house aluminum recycling promotion secretariat to all employees to encourage them to participate in the activity while also asking neighboring companies for their understanding and cooperation regarding the recycling. We will continue to make a concerted effort for the recycling. (Showa Denko Aluminum Trading K.K.)

Highlights of CSR Activities

Environmental

The Showa Denko Group promotes various measures to reduce greenhouse gas emissions and energy consumption as part of its efforts to combat global warming and support resource conservation. Moreover, to prevent air, water, and soil pollution, we are working to reduce the release of chemical substances by fuel conversion and improvement of the manufacturing process while also decreasing the generation of waste by fostering reuse and recycling. We are thereby continuing to achieve zero emissions (meaning that waste sent to final landfill is 1% or less of total waste generated).

▶ Discharged amounts of greenhouse gases (2017 Showa Denko Group)



▶ Rate of final landfill of industrial waste (Showa Denko Group)



TOPIC

Given the highest commendation by Tochigi Prefecture as a Marronnier ECO plant

The Oyama Plant of Showa Denko K.K. received the highest commendation from Tochigi Prefecture when it was named a "Marronnier ECO plant."* The Plant received the endorsement in recognition of its initiative to introduce highly efficient devices and energy-saving equipment and social contribution activities conducted in cooperation with local communities. The Plant will continue to proactively conduct environmental protection activities.

* Marronnier ECO plant: Among the Eco Keeper plants, Tochigi Prefecture names local plants that implement outstanding measures for environmental conservation "Marronnier ECO plants."



Commendation ceremony (Feb. 2018)

Social

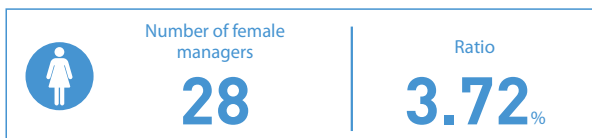
The Showa Denko Group is working to build relationships of trust with stakeholders. For example, we are proactively holding chemistry experiment classes for children, who are the rising generation, as well as factory tours as a means of contributing to local communities through our technologies, human resources, and equipment.

We are also implementing measures to promote diversity to provide all employees of the Group with workplaces where diverse values are respected and all members can work with vigor.

▶ Ratio of handicapped employees (2017, Showa Denko K.K.)



▶ Number of female managers and its ratio (2017, Showa Denko K.K.)



TOPIC

Class-on-demand

The Showa Denko Group's bases provide local children with classes on demand and hands-on experiment demonstrations as well as hosting interns.

Employees of the Chichibu Plant of Showa Denko K.K. visited a local elementary school in November 2017 to provide third-graders with a class on demand.

The employees introduced Showa Denko and the products manufactured by the Chichibu Plant, and explained how the company's products were used in daily life in an easy-to-understand manner. The children then participated in an experiment in which the Plant's products were used.

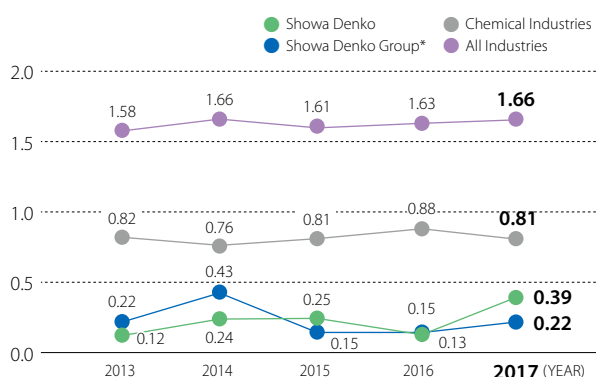


Class-on-demand (Nov.2017, Chichibu Plant, Showa Denko K.K.)

Safety

As an entity engaged in the chemical industry, the Showa Denko Group's first priority is safety. We are continuing the Active Safety activities to prevent occupational accidents, equipment-related incidents, and environmental problems.

Trends infrequency rate of lost-time injuries



*Scope of Group companies (As of December 2017)

Tsurusaki Kyodo Doryoku K.K., Showa Denko Ceramics Co., Ltd., Shinshu Showa K.K., Showa Denko Packaging Co., Ltd., Showa Aluminum Can Corp., Showa Denko Sakai Aluminum K.K., Showa Denko Electronics K.K., Union Showa K.K., Niigata Showa K.K., Showa Aluminum Can Recycling Center, HIPACK Co., Ltd., Showa Denko Gas Products Co., Ltd., Clean-S Showa K.K., Nippon Polytech Corp., Showa Denko Kenso K.K., Showa Fine Ceramics Co., Ltd., Showa Denko HD Yamagata K.K., Fuyo Perlite Co., Ltd. and SunAllomer Ltd.

TOPIC

Granted the Safety Award by the Japan Chemical Industry Association (JCIA)

Showa Denko Electronics K.K. received the 41st JCIA Safety Award in recognition of its excellent safety record. The JCIA gives this award to business establishments that conduct exemplary voluntary activities for industrial safety and health in the chemical industry. Recipients of the award are selected from a large field of candidates, first through document screening and then through on-site inspections and expert deliberations.



Commendation ceremony (May, 2017)

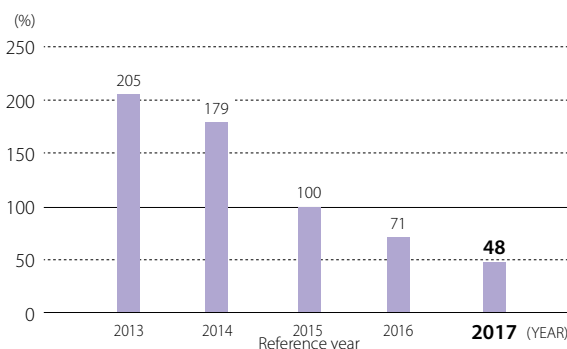
CSR procurement

Our CSR procurement aims to mutually improve the corporate value of both our business partners and Showa Denko by sharing with them and requesting their compliance with the Showa Denko Group CSR Procurement Guidelines (<http://www.sdk.co.jp/english/about/procurment/csr.html>). The guidelines provide specific CSR activities that we request our business partners to conduct. In order to confirm their compliance with the guidelines, in 2017 we continued performing three activities: asking business partners to assess their own CSR activities ("self-assessments"), visiting them for inspection purposes ("CSR visits"), and doing follow-up checks on their improvement ("follow-up").

Quality Assurance

The Showa Denko Group is committed to providing "products and services that are useful and safe and exceed our customers' expectations." To this end, we organically and systematically conduct activities to ensure product safety so that customers can use our products with peace of mind. Throughout the life cycle of our products, from the stages of design, development, marketing, manufacturing, and sales to after-sale service, we work to ensure the safety of our products by taking a risk-based approach. Specifically, we do this by identifying and reducing risks for a range of items related to the products, including how our customers use and dispose of them, in addition to confirming their chemical safety.

Trends in annual numbers of complaints (With a score of 100 representing the number of claims in 2015)



Responsible Care

Responsible Care Management

Responsible Care Action Guidelines

Showa Denko established the "Responsible Care Action Guidelines" in March 1995. These guidelines stipulate management policies related to the environment, safety, and health. Our Group promotes activities based on these action guidelines.

In addition, we also signed the Responsible Care Global Charter in 2005, pledging our support for and implementation of the charter.

When the RC Charter was amended in 2014, we re-signed, making clear our willingness to promote RC activities through global collaboration.



Responsible Care Global
Charter Signatory Certificate

Responsible Care Action Guidelines (Showa Denko Group Action Guidelines)

1. Throughout the entire life cycle of products, we shall make our best efforts to review and improve business activities continuously from the view points of ensuring safety & health and protecting the environment.
2. We shall make our best efforts towards sustainable development by harmonizing our production activities with the global environment, not only through conventional approaches to environmental preservation, but also through promotion of changing raw materials, energy conservation, waste reduction and recycling, reductions in the release of chemical substances, etc.
3. In the development of new products and businesses and in the establishment, enlargement, and renovation of facilities, we shall undertake our best efforts to ensure safety and health and to protect the environment.
4. We shall promote R&D and develop technologies that will contribute to the improvement of safety and health and to the protection of the environment. We shall also promote the marketing of alternative or new products.
5. We shall enrich risk assessments and risk management concerning the effects of the products and materials we handle on safety, health, and the environment, and we shall provide information on the safe use and handling of our products to our stakeholders as well.
6. In overseas business activities, technology transfer, and international trading of chemical products, we shall give full consideration to ensuring safety and health, and protecting the environment.
7. We shall comply with international rules, domestic laws and regulations, and make our best efforts to cooperate with the relevant international organizations, domestic and foreign administrative bodies, etc.
8. We shall participate proactively in various activities related to the ensuring of safety & health and environmental protection, and make our best efforts to communicate with society to achieve better understanding and trust.

Responsible Care promotion system

The Responsible Care Promotion Council is placed under the CSR Committee to have preliminary deliberations on important issues concerning Responsible Care activities.

As of February 2017, we are promoting Responsible Care at our headquarters, 13 business divisions, 15 workplaces, 3 branches, the Business Development Center and 14 major Group companies.

At overseas Group companies (manufacturing) as well, we have identified achievements relating to Responsible Care and provided local guidance to expand the target scope.

► Responsible Care Promotion system



System of worksites

Chart for reference: Each worksite defines its own system



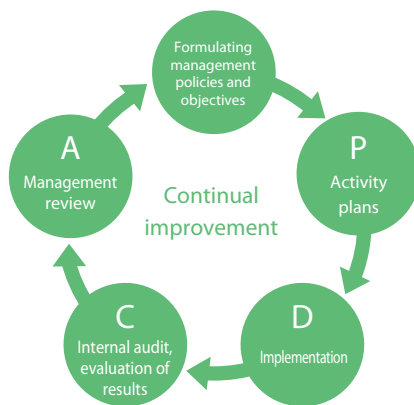
* Group Companies

Tsurusaki Kyodo Doryoku K.K. Showa Denko Ceramics Co., Ltd., Showa Denko Packaging Co., Ltd., Showa Aluminum Can Corp., Showa Denko Sakai Aluminum Co., Ltd., Showa Denko Electronics K.K. Union Showa K.K. Niigata Showa K.K. Showa Aluminum Can Recycling Center, HI-PACK Co., LTD., Showa Denko Gas Products Co., Ltd., Clean-S Showa Co., Ltd. Shinshu Showa K.K. and Frontier Carbon Corp

The PDCA cycle

The Showa Denko Group works to achieve continuous improvement in its Responsible Care activities through the plan-do-check-act (PDCA) cycle of formulating Responsible Care activity plans (plan), implementing these (do), auditing and evaluating the results (check), and reflecting these via management review in the next round of objectives and activity plans (act).

► The PDCA cycle



Education system

The Showa Denko Group, employees receive Responsible Care education that focuses on occupational safety, environment preservation and compliance when they join the company or are promoted. Internal auditors for environmental management systems and occupational safety and health management systems are also provided with annual training. In this way, we ensure that all employees are familiar with Responsible Care.



Responsible Care training for new manufacturing section managers
(Iseaki Plant Showa Denko K.K. Dec.2017)

Auditing structure

Showa Denko and its major Group companies conduct audits as described below for their worksites to assess and improve their Responsible Care activities.

Self-audit

Workplaces of Showa Denko and its major Group companies evaluate their own Responsible Care systems and implementation statuses based on a checklist, so as to reflect the results in the following year's targets and action plans in order to move forward with continuous improvement.

Worksite auditing

The Environment & Safety Office of the CSR Department audits worksites to both, make evaluations and improvements regarding Responsible Care at Showa Denko and its major group companies. In 2017, we audited 33 workplaces (including our headquarters, branch offices and business divisions).

The CSR Committee deliberates these results to reflect them in the policies, goals and plans of the entire company and Group companies.

Management system

The Showa Denko Group continues improving its management system through receiving and maintaining certification of conformity to management system standards including those for environment, quality, and industrial safety and hygiene.

See our website for a list of sites that obtained certifications regarding environmental systems, quality management systems, or occupational health and safety management systems.

Action Plan

Every two or three years, the Showa Denko Group establishes a medium-term Responsible Care action plan, which is then used as the basis for annual action plans during the period covered.

All workplaces draft detailed action plans based on the comprehensive plan, tailored to local conditions and circumstances, and promote Responsible Care.

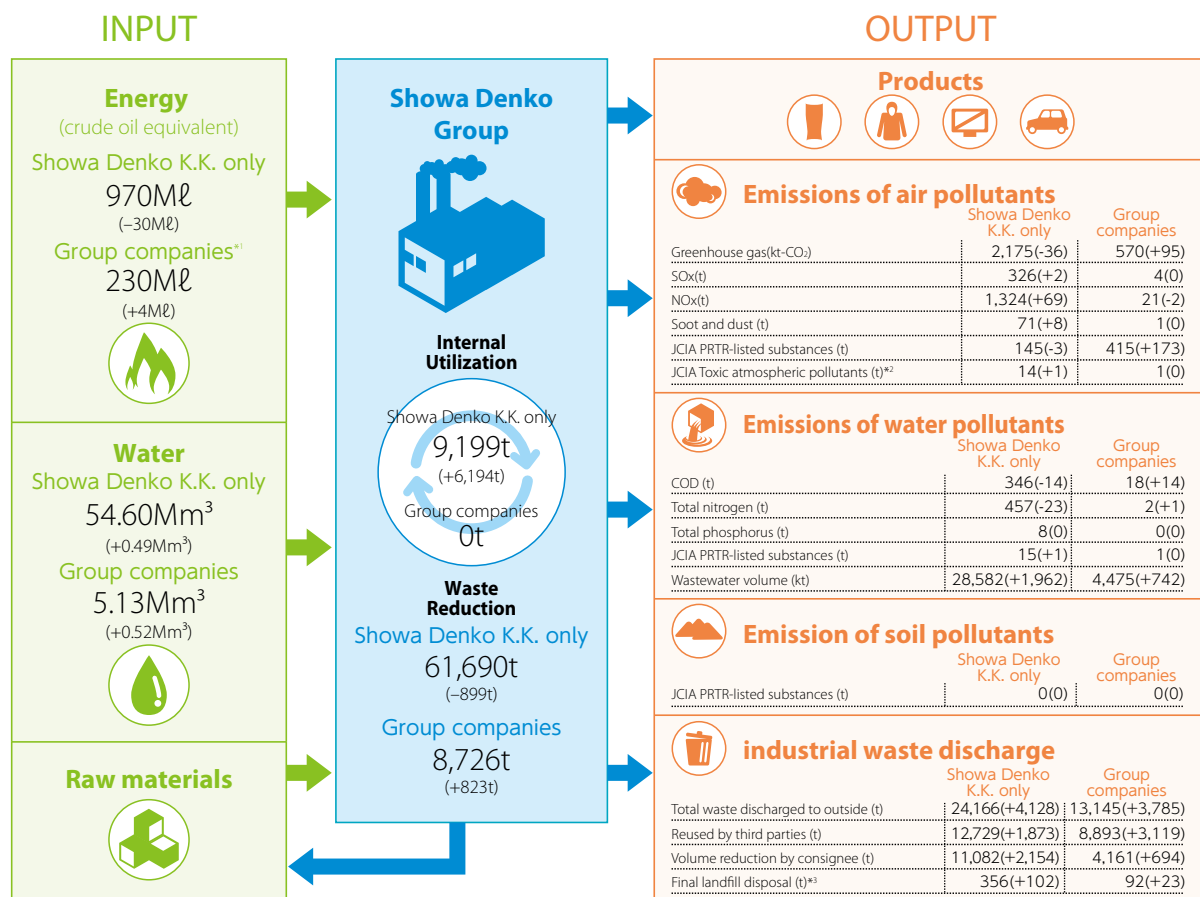
We post the action plan on our website. We will continue to promote active engagement in these efforts to meet our targets.

Responsible Care

Environmental Conservation

Resource use and environmental impact

Actual values of environmental loads for 2017 are as follows:



The figures in parentheses represent increases or decreases relative to the previous year.

*1 Scope of the Showa Denko Group : Total for the 10 consolidated manufacturing subsidiaries in Japan; SunAllomer Co., Ltd., (2017-); Showa Denko Gas Products Co., Ltd., Showa Denko Ceramics Co., Ltd., (Toyama), Showa Aluminum Can Corp., Showa Denko Packaging Co., Ltd., Niigata Showa K.K. Nippon Polytech Corp., Showa Denko Kenso ,Co., Ltd., Showa Denko HD Yamagata K.K. and Showa Fine Ceramics Co., Ltd., GHG emissions include those for Showa Denko Electronics K.K. and Tsurusaki Kyodo Doryoku Co., Ltd., and exclude those Niigata Showa K.K. Nippon Polytech Corp., Showa Denko Kenso ,Co., Ltd., Showa Fine Ceramics Co., Ltd., which are not required to report emissions as emitters designated under the Act on Promotion of Global Warming Countermeasures.

*2 Emissions of toxic atmospheric pollutants are included in emissions of PRTR-listed substances.

*3 Final landfill disposal: Including only waste generated from production activities during the year.

► Showa Denko Group Companies outside Japan

		2015	2016	2017
Discharged amounts of greenhouse gases	kt-CO ₂	445	402	416
The amount of water used	million m ³	336	330	358
Wastewater volume	kt	2,188	2,823	2,093
Final landfill volumes of industrial waste	kt	3,864	4,748	5,813

Grappling with water resources

The importance of water resources is globally recognized. The Showa Denko Group conducts surveys on water resource-related risks at its plants, and is proactively implementing measures to reduce the use of water at the plants by making examinations for the efficient use of water, while working to maintain and improve the quality of water discharged from the plants to the environment.

We also contribute to the safety of food and agriculture by manufacturing sodium hypochlorite used to ensure the safety of water and promoting the reuse of water used for hydraulic power generation for agriculture.

Environmental Accounting

Actual values of environmental accounting for 2017 are as follows:

► Environmental accounting (million yen)

			Capital investment	Expenses
Cost within business site	Pollution prevention	Capital investments and expenses associated with prevention of atmospheric/water/soil pollution, noise, vibration, odor, etc.	233	164
	Global environmental protection	Capital investments and expenses associated with energy conservation and combating global warming and ozone-layer depletion	652	664
	Resource recycling	Capital investments and expenses associated with resource conservation and waste treatment	274	862
Upstream and downstream costs		Costs associated with reducing environmental impact in business operations upstream and downstream, including green purchasing and recycling of products and packaging	0	11
Administrative costs		Administrative costs relating to environmental conservation, including environmental issues training, introduction of environmental management systems, and environmental impact evaluations	0	588
R&D costs		Costs associated with research and development of environment friendly products and technologies	401	883
Community outreach costs		Environmental conservation costs for local community outreach activities not directly linked to business operations, such as environmental conservation projects in communities, dialogue with residents, and plant tours	0	8
Other		Compensation for health damages resulting from environmental pollution, etc.	0	308
Total			1,560	3,488

► Reducing environmental impact (t)

	1990	2017
SOx	3,698	326
NOx	3,522	1,324
Soot and dust	283	71
COD	786	346
Total nitrogen	607	457
Total phosphorus	51	8
Landfill disposal	19,723	356

► Economic benefits (million yen)

Energy conservation	251
Resource recycling	592
Waste reduction	7
Other	1
Total	851

Biodiversity Efforts

Basic policies

Showa Denko gives due consideration to biodiversity. It is participating in the Japan Business and Biodiversity Partnership* and assessing the influence exerted over biodiversity by its business activities.

* Japan Business and Biodiversity Partnership: A multi-stakeholder biodiversity initiative that consists of business entities which endorse 'Action Policies of Japan Business and Biodiversity Partnership' and are implementing or planning to implement one or more actions among them, and economic organizations, NGOs, researchers, local/national governments and other public organizations which support those business entities' biodiversity initiatives.

Activities in 2017

At the worksites, we select and implement tasks that are considered necessary from the viewpoint of biodiversity protection from among various environmental conservation activities conducted at each worksite including water resource management, greenery expansion, and community activities.

As in the previous year, we continued to focus mainly on the following three tasks in 2017: (1) development of plans for proper management of greenery areas; (2) implementation of proactive measures to reduce the environmental impact of wastewater; and (3) promotion of programs that make effective use of the unique characteristics of each worksite. To address these tasks, we conducted necessary investigation and examination, and promoted specific measures that match the locational characteristics of each worksite.



The Oyama Plant of Showa Denko K.K. participated in the Watarase Retarding Basin cleanup activity.



Showa Aluminum Manufacturing Philippines participated in the tree planting activity with other companies located in the industrial park.

Responsible Care: Environmental Conservation

Global Warming Prevention Measures

Basic policies

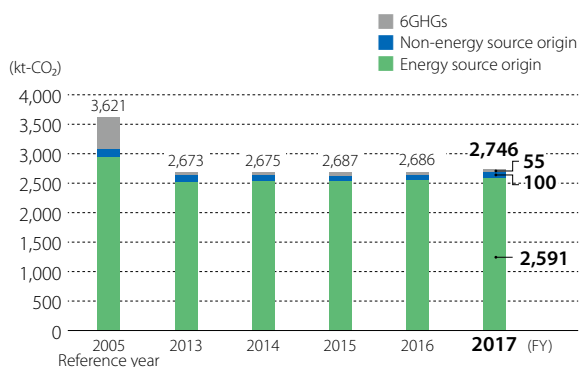
The Showa Denko Group promotes various measures to reduce greenhouse gas emissions and energy consumption as part of its efforts to combat global warming and support resource conservation.

Activities in 2017

1. Reduction of CO₂ emissions

The Group continued its efforts to reduce greenhouse gas emissions, including improvement of production processes, conversion of energy conservation activities, and modifying equipment.

Trends in discharged amounts of greenhouse gases



Scope 3 GHG emissions(kt/YEAR)

	Category	The amount of emission
1	Purchased goods and services	1,743
2	Capital goods	121
3	Fuel- and energy-related activities not include in Scope1 and 2	412
4	Upstream transportation and distribution	25
5	Waste generated in operations	9
6	Business travel	3
7	Employee commuting	1
	Other (down stream)	13,135

TOPIC

Commended as a plant with excellent anti-global warming measures

The Tokuyama Plant of Showa Denko K.K. was commended by Yamaguchi Prefecture as a plant with excellent anti-global warming measures in November 2017.

The governor of Yamaguchi Prefecture annually gives commendations to individuals and organizations that have made outstanding contributions to environmental conservation.

The Tokuyama Plant has been updating its equipment to increase energy efficiency and reduce environmental impact. As a result, the Plant reduced its CO₂ emissions by 57% relative to the 2010 level. The Plant was given the commendation in recognition of this effort.

The Plant will proactively continue to increase its energy efficiency by replacing its facilities with more appropriate ones in line with the reviewed business plan.



2. Utilization of our own hydroelectric power stations

Showa Denko owns and operates hydroelectric power stations at its four plants.

The repair work that had been conducted since 2015 for the long-term use of the facilities was all completed at the end of August 2017. The total amount of electricity generated by the hydroelectric power stations in 2017 was equivalent to 25% of our total power consumption, up 10% from the fiscal 2016 level.

3. Implementation of c-LCA*

The Showa Denko Group assesses CO₂ emissions across the entire life cycle of each product, encompassing not just direct emissions (Scope 1) and indirect emissions (Scope 2) during production but also emissions during the procurement of raw materials and the use, disposal and recycling of products (Scope 3), contributing to the reduction of CO₂ emissions across society as a whole.

* c-LCA (carbon-Life Cycle Analysis) is a methodology to assess the CO₂ emissions in the total lifecycle of products from the time their raw materials are taken, they are manufactured, distributed, used up, to the time they are abandoned.

(Note) The Greenhouse Gas (GHG) Protocol classifies emissions into three scopes: Scope 1 (Direct emissions from the reporting company), Scope 2 (Indirect emissions from the generation of purchased or acquired electricity), and Scope 3 (Other indirect emissions from the reporting company's supply chain).

4. Reducing environmental impact through supply chain management (SCM)

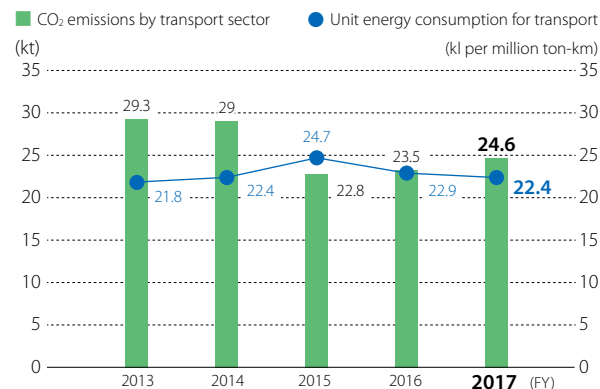
As a way to reduce its environmental impact, Showa Denko is also committed to improving transportation efficiency across its entire supply chain from the procurement of materials through to production, sales and delivery.

In particular, to reduce the environmental impact associated with logistics, we are promoting a modal shift from truck to rail and ship transportation as well as making efficient use of large trucks and increasing their loading efficiency to reduce our CO₂ emissions.

In fiscal 2017, in addition to promoting a modal shift, we also strove to reduce energy consumed for transportation by increasing the shipment amount to minimize the frequency of transportation and by relocating the storage places to reduce long-distance transportation.

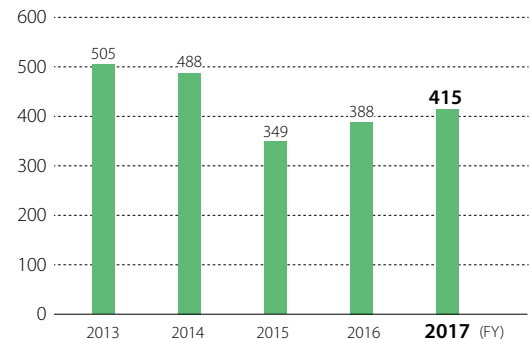
In the fiscal year, per-unit energy consumption decreased year on year, although CO₂ emissions increased due to increased transportation volume. This is mainly because we increased the proportion of ship transportation (on a ton-kilometer basis), which is superior to transportation by truck in terms of per-unit energy consumption.

► Transportation sector's CO₂ emissions and energy consumption rate

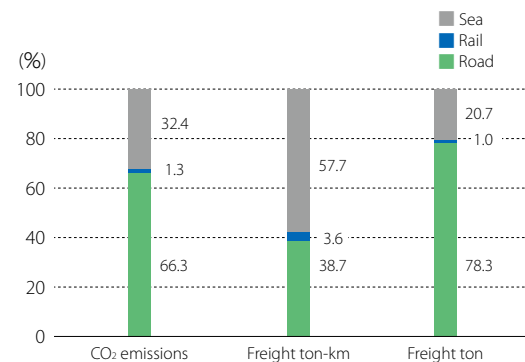


► Freight ton-km

(million ton-km)



► Ratios for use of various modes of transport (FY2016)



5. Promoting energy saving in office

Using the tight electric power conditions after the Great East Japan Earthquake disaster as an opportunity, we have implemented thorough energy saving measures even in the office buildings, including introduction of energy-efficient air conditioners and LED lights.

Responsible Care: Environmental Conservation

Environmental considerations; Atmosphere, water and soil

Basic policies

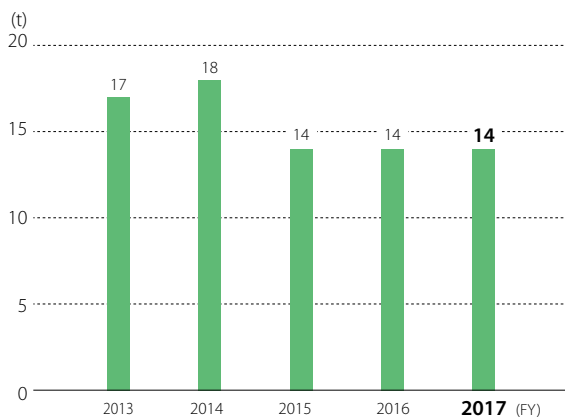
To prevent air, water, and soil pollution, the Showa Denko Group endeavors to reduce the release and environmental impact of chemical substances through fuel switching, improvement of production processes, and other measures

Activities in 2017

Reducing emissions of hazardous air pollutants

Of the 12 substances designated by the Japan Chemical Industry Association (JCIA) as hazardous air pollutants, the Showa Denko Group handles nine. In 2016, we continued our efforts toward reducing the emissions of these substances by promoting a shift to alternative substances and collection and recycling of the substances.

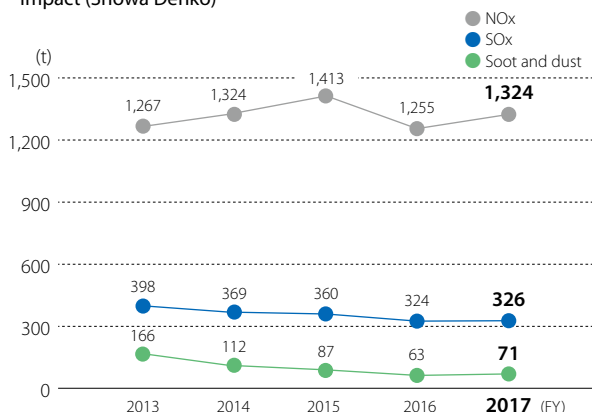
▶ Total amounts released of harmful atmospheric pollutants (Showa Denko)



Reducing our environmental impact on the air

To reduce emissions of SO_x, NO_x, dust and soot, and other substances having adverse effects on the air, the Group continued advancing a variety of measures including fuel switching, improvement of combustion methods, proper operational management of desulfurization and denitrification devices, and reduced fuel consumption through waste heat recovery.

▶ Change in discharged amounts of substances with atmospheric impact (Showa Denko)

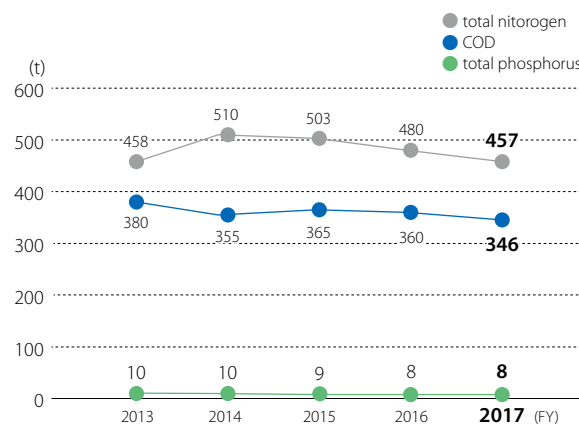


Reducing our environmental impact on water

To reduce chemical oxygen demand (COD), total nitrogen, total phosphorus, and other water pollution indexes, the Group continued implementing various measures including improvement of production processes, upgrading and proper operational management of wastewater treatment facilities, and recycling of water.

Moreover, we installed equipment to prevent high-concentration wastewater from leaking outside via drainage pipes.

▶ Discharged amounts of substances with water quality impact (Showa Denko)



Measures to prevent soil and groundwater pollution

On occasions such as changes in the uses of plant sites or soil removal, the Showa Denko Group undertakes surveys and other measures in line with the Soil Contamination Countermeasures Law and local government regulations.

Minamata disease in Niigata Prefecture

Fifty years have passed since the outbreak of Niigata Minamata disease was officially recognized.

Maintaining an awareness of the significant scale at which we have caused damage to the victims and residents of neighboring areas through contamination of the Agano River, Showa Denko is committed to collaborating with the Japanese Government as well as local governments in order to cope with this issue with sincerity, and provide solutions in accordance with the Act on Compensation, etc. for Pollution-related Health Damage and other relevant laws and regulations.

Reducing Industrial Waste

Basic policies

The Showa Denko Group will continue to achieve zero emissions (meaning that waste sent to final landfill is 1% or less of total waste generated).

Activities in 2017

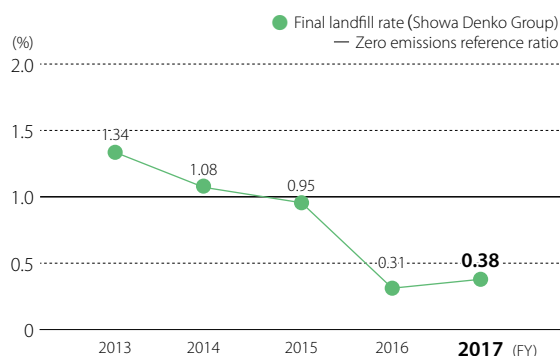
To reduce disposal of industrial waste, the Showa Denko Group has been taking various actions including the reuse of waste acids and waste alkalis, use of waste oil and waste plastics as fuel for heat recovery, and effective use of inorganic sludge as a raw material for cement and others. These measures have been helping us curb generation and promote reuse and effective use of waste materials.

1. Reducing volume of landfill disposal

We continued to reduce the generation of industrial waste and the volume of final landfill waste, thereby continuing to achieve zero emissions (with the Group's landfill rate of 0.38%). The Group's landfill rate slightly increased year on year due to the removal of unnecessary equipment and devices from its sites, which resulted in an increase in the landfill amount.

We also inspected our contractors for intermediate treatment and final disposal and confirmed that they treated and disposed of our waste properly.

Final landfill rate of industrial waste



2. PCB control

Based on its PCB control checklist, Showa Denko regularly checks the status of stored polychlorinated biphenyl (PCB) waste for appropriate management. We are replacing PCB-containing equipment and commission the disposal to professional companies in a planned manner.

Reducing Chemical Substance Discharge

Basic policies

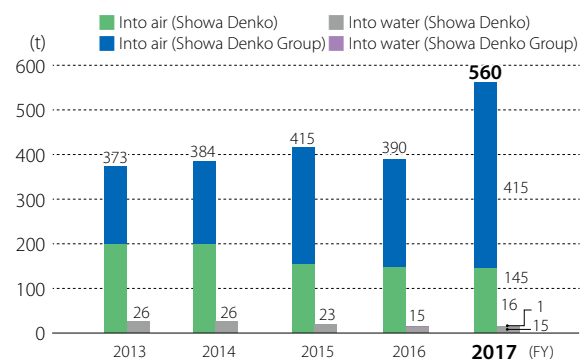
As a member of the Japan Chemical Industry Association (JCIA), Showa Denko has been voluntarily investigating the amount of chemical substances discharged and transferred by the company to reduce the emission of the substances. We also plan and implement reduction measures for each of our plants

Activities in 2017

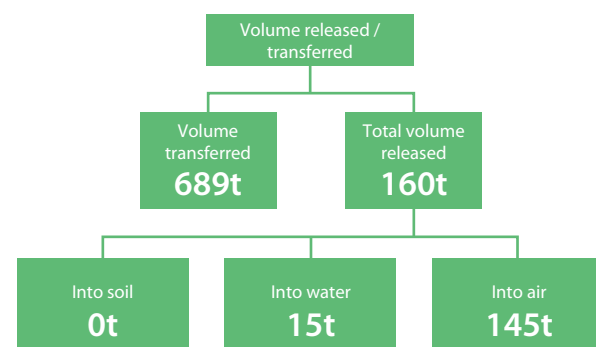
Showa Denko investigated the amount of 417 substances, including PRTR-listed substances, discharged and transferred by the company and reported the results to JCIA.

Showa Denko will continue to make focused efforts to reduce discharge volumes by preparing reduction plans for each site for PRTR-listed substances and for substances with high annual discharge volumes. The Company is currently seeking to ascertain and assess potential impact in areas surrounding its sites and improve communication with local communities and governments concerning risks as it works to reduce discharge volumes.

Released of PRTR-listed substances



PRTR-listed substances released and transferred (Showa Denko)



Responsible Care

Equipment safety/Occupational Safety

Equipment safety

Basic policies

The Showa Denko Group aims to reduce equipment-related accidents to zero by promoting the Active Safety initiative in which we analyze past incidents to prevent recurrences.

Activities in 2017

The Showa Denko Group has been conducting the Active Safety activities for zero serious incidents. In 2017, however, we had nine equipment accidents, though fortunately no personal injuries were sustained. In light of the frequent reoccurrence of similar accidents, we began conducting an activity to promote the inherent safety of equipment, while sharing the lessons learned by analyzing the causes of past accidents. We also continued other activities, including intensive discussions on safety at the Safety Meetings held by the Management Committee.

1. Response to the industrial safety action plan drawn up by the Japan Petrochemical Industry Association (JPCA)

We placed particular focus on risk assessment of unusual conditions and operations, while implementing educational training sessions and various improvement activities to enhance our safety culture and strengthen our safety foundation.

2. Precautions against earthquakes

From the viewpoints of human safety, the environment, and business continuity planning (BCP), we made a seismic reinforcement plan for 2019 and onward so as to implement anti-seismic measures in an effective manner.

In March 2018, we updated the earthquake early warning system, which was implemented on a firm-wide basis to announce the occurrence of an earthquake to employees as soon as possible, to one that supports the PLUM method newly adopted by the Japan Meteorological Agency.

We have also been working on BCP with a focus on possible earthquake disasters. In line with the business continuity guidelines set by the Cabinet Office of Japan, we have built up a business continuity promotion system and basic policies, designated important operations to be continued by the divisions, plants, and major Group companies, and identified bottlenecks to maintaining the continuity of these operations. In addition to making business continuity plans, we are working on their documentation, educating and training employees on the plans, and reviewing the plans for strict business continuity management (BCM).

TOPIC

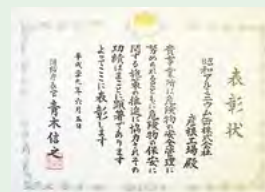
Hikone Plant of Showa Aluminum Can Corp. commended by the Commissioner of the Fire and Disaster Management Agency

The Hikone Plant received a fiscal 2017 commendation from the Commissioner of the Fire and Disaster Management Agency as an establishment exhibiting excellence in the management of hazardous materials.

The Commissioner's commendation is given to establishments that have voluntarily and proactively worked for the safe management of hazardous materials, cooperated with the government's safety measures for hazardous materials, and made outstanding contributions to ensuring day-to-day safety.

The Hikone Plant makes an annual occupational health and safety plan and fosters safety management based on cooperation among employees in charge of fire prevention for the entire plant and at each workplace and in-house firefighting teams.

Moreover, the Plant educates all employees on how to use a fire extinguisher and on Safety Data Sheets (SDSs) and conducts comprehensive firefighting and disaster control drills to raise employee awareness. The Plant also exchanges views with the municipal government and local residents, invites locals to tour the premises, and shares information with the local fire department for disaster control and environmental protection.



Testimonial

Occupational Safety

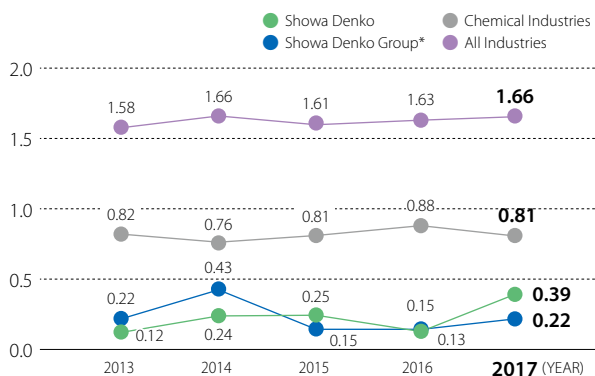
Basic policies

In order to eliminate work-related accidents, the Showa Denko Group is promoting Active Safety activities by using its own Active Safety Checklist developed in-house.

Activities in 2017

In 2017 we had seven lost-time injuries. In view of the high frequency of falls and other behavioral incidents, we enhanced safety education and provided non-technical skill training by using risk simulation facilities. We also conducted activities to identify and reduce risks from broader viewpoints, including organizing safety exchange meetings and mutual inspections between the bases. Moreover, we fostered the effective use of information about past incidents across the company by emailing the "Safety Calendar" to employees, while collecting and analyzing information about no-lost-time injuries and promoting the sharing of the results among employees to help them increase their safety sensitivity and awareness.

► Trends in frequency rate of lost-time injuries



* Scope of Group companies (As of December 2017)

Tsurusaki Kyodo Doryoku K.K., Showa Denko Ceramics Co., Ltd., Shinshu Showa K.K., Showa Denko Packaging Co., Ltd., Showa Aluminum Can Corp., Showa Denko Sakai Aluminum K.K., Showa Denko Electronics K.K., Union Showa K.K., Niigata Showa K.K., Showa Aluminum Can Recycling Center, HIPACK Co., Ltd., Showa Denko Gas Products Co., Ltd., Clean-S Showa K.K., Nippon Polytech Corp., Showa Denko Kenso K.K., Showa Fine Ceramics Co., Ltd., Showa Denko HD Yamagata K.K., Fuyo Perlite Co., Ltd., and SunAllomer Ltd.

TOPIC

Sakai Plant: Making a safety pledge

At the Sakai Plant of Showa Denko K.K., employees participate in a safety event on March 1 every year to remind themselves of the serious incident that occurred at the Plant. Again in 2018, many employees gathered to pray for safety in front of the "safety pledge" monument.

After they prayed for safety, Corporate Officer Takasaki made a speech. He encouraged employees to promote visualization and standardization so as to point out dangerous operations to each other to increase on-site safety and avoid ever having another serious incident at the Plant.

Subsequently, a safety promotion meeting was held for the entire Aluminum segment, to which the Sakai Plant belongs.



Pray for safety in front of the "safety pledge" monument

► 2017-2018 List of RC-related awards received by the Showa Denko Group companies

	Name of award	Recipient site and individual	Month received
2017			
Disaster prevention	Fiscal 2017 Excellent Hazardous Materials Facility Accredited by the Commissioner of the Fire and Disaster Management Agency	Hikone Plant of Showa Aluminum Can Corp.	June
	Fiscal 2017 Japan Petrochemical Industry Association Maintenance Award	Kazufumi Araki, Kawasaki Plant of Showa Denko	October
Health and occupational safety	Fiscal 2016 Minister of Health, Labour, and Welfare's Award for business facility managers who place priority on safety	Toru Aoki, Shiojiri Plant of Showa Denko Ceramics Co., Ltd.	January
	Safety Merit Award of the 41th JCIA Safety Awards	Showa Denko Electronics K.K.	May
	Special Award for Excellence, 2016 Japan Aluminum Association Occupational Safety Awards	Omura Plant of Showa Aluminum Can Corp.	
		Oyama Plant of Showa Aluminum Can Corp.	
		Showa Denko Sakai Aluminum K.K.	
	Award for Excellence, 2016 Japan Aluminum Association Occupational Safety Awards	Oyama Plant of Showa Denko K.K.	
2018			
Disaster prevention	Fiscal 2018 Excellent Hazardous Materials Facility Accredited by the Commissioner of the Fire and Disaster Management Agency	Chichibu Plant of Showa Denko K.K.	June
Health and occupational safety	Fiscal 2017 Minister of Health, Labour, and Welfare's Award for business facility managers who place priority on safety	Akira Morii, Oyama Plant of Showa Denko K.K.	January
	Accident-free record certificate from the Ministry of Health, Labour and Welfare (Fourth-class)	Oyama Plant of Showa Aluminum Can Corp.	February
	Safety Merit Award of the 42th JCIA Safety Awards	Showa Denko HD Yamagata K.K.	May
	Special Award for Excellence, 2017 Japan Aluminum Association Occupational Safety Awards	Oyama Plant of Showa Denko K.K.	
		Omura Plant of Showa Aluminum Can Corp.	
		Oyama Plant of Showa Aluminum Can Corp.	
	Award for Excellence, 2017 Japan Aluminum Association Occupational Safety Awards	Showa Denko Sakai Aluminum K.K.	

Responsible Care

Chemical Substances Safety/Quality Assurance

Chemical Substances Safety

Basic policies

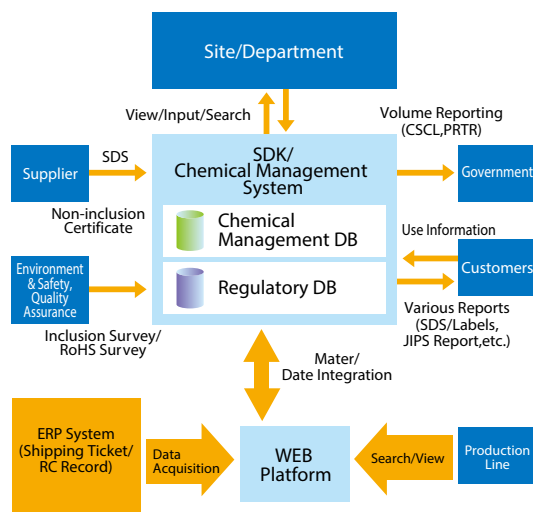
At the World Summit on Sustainable Development (WSSD) held in 2002, participants agreed to pursue the goal of minimizing the adverse effects of chemicals on human health and the environment by 2020, and activities to ensure the safety of chemicals have since been fostered across the world.

In order to “provide products and services that are useful and safe and exceed our customers’ expectations,” the Showa Denko Group takes a risk-based approach and proactively participates in the activity conducted by the International Council of Chemical Associations (ICCA) for the comprehensive management of chemical substances. Specifically, we work to ensure the safety of chemicals throughout their life cycle, from R&D through to the design, manufacture, sale, transportation, use, and disposal stages. In addition to confirming the safety of chemical substances used in our products, we give consideration to a range of related items, such as how customers use our products and how they will be disposed of, thereby identifying and reducing any risks related to the products.

Chemical substance management system

We have expanded our comprehensive chemical substance management system and are making effective use of the system as the basis of our efforts to ensure compliance for chemical substances used in our products.

Comprehensive chemicals management system



Activities in 2017

1. Sharing information about chemical substances

We established a database for the management and internal/ external sharing of information about the hazardousness of chemical substances used in materials and products, related risks, legal regulations, and about their applications across the supply chain.

2. Compliance with chemical substance-related laws and regulations in Japan and abroad

The Showa Denko Group monitors the trends of Japanese and foreign regulations on chemical substances. For the chemical substances used in our products, we proactively work to ensure compliance with the law by using the aforementioned database.

- Legal regulations in Japan: We are making use of our comprehensive chemical substance management system to ensure compliance with the related laws, such as the following, in a systematic manner: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; Industrial Safety and Health Act; and Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof.
- Legal regulations outside Japan: We monitor revision trends by making use of various databases to help our personnel in relevant countries make appropriate responses to the regulations.

Quality Assurance

Basic policies

The Showa Denko Group is committed to providing products and services that are useful and safe and exceed our customers' expectations.

To this end, we organizationally and systematically conduct “product safety” activities to assure customers that our products are safe throughout their life cycle, from design and development to market release, production, sales, and after-sales. In these activities we take a risk-based approach. Specifically, to identify and reduce our product-related risks, we give consideration to a range of items, including how customers use our products and how they will be disposed of, in addition to confirming the safety of chemical substances used in the products.

As the basic rules for product safety activities, we set the Quality Assurance and Quality Control Rules (“Rules”) within the company. We review the Rules annually to revise them according to changes in the environment and society and thereby keep them effective to ensure product safety.

► Quality Assurance and Quality Control Rules



Activities in 2017

To enhance our quality assurance and management capabilities, we implemented the following activities:

■ 1. Product safety management

To help customers use the Showa Denko Group's products in a safe manner, we collect information about the safety of chemicals and related legal regulations. We centrally manage the collected information under our comprehensive chemical substance management system. Specifically, we use our Safety Data Sheets (SDSs)*¹, product labels, and yellow cards*² to provide customers with the latest and appropriate information on chemical safety.

We also have a risk-based screening system to decide whether or not to ship a sample new product to a customer or release a new product into the market.

In 2017, we worked to optimize the flow from the collection to the provision of safety information so that we could provide customers with all necessary information.

*¹ SDS (Safety Data Sheet):

This is a document provided by the supplier to the user (customer) of a chemical substance, covering such matters as its name, toxicity, and physical/chemical properties; cautions concerning its handling and storage; and emergency measures.

*² Yellow card:

This refers to an emergency contact card, which is recommended by JCIA, to briefly describe appropriate response by transportation company personnel, police, and fire-fighters in the event of accidents involving hazardous or toxic substances.

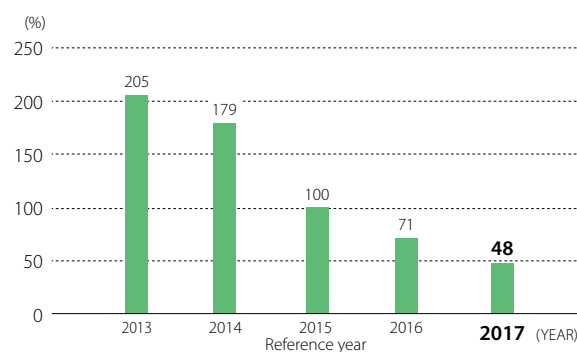
■ 2. Quality management system (Quality control scheme)

The Showa Denko Group has established quality management systems suitable for each product and organization, and has acquired certification for ISO 9001, IATF 16949, and other international standards. To comply with the revised standards before the end of the transition period (end of 2018), we began conducting necessary activities, which will result in the enhancement of our quality management systems and higher quality of our products and services.

■ 3. Reducing complaints

We conducted activities to attain the target of reducing the number of complaints about the quality of our products by half in 2020 relative to 2015. As a result of implementing measures to prevent the reoccurrence of similar complaints based on analysis of the true causes of complaints and by learning and sharing lessons from the complaints made to the Showa Denko Group, the number of complaints dropped by about 30% year on year in 2017, and we achieved the target for 2020 earlier than planned.

► Trends in annual numbers of complaints (With a score of 100 representing the number of claims in 2015)



■ 4. Enhancement of on-site capabilities

In order to raise our quality assurance and management level, we set the target of enhancing the capabilities and quality awareness of on-site workers and clarified the level to be attained by the departments in charge of quality assurance. We then checked the current levels of the divisions, plants, and Group companies and made a specific plan to raise their levels.

■ 5. Quality diagnoses

Personnel from the Head Office's Quality Assurance Office visit and carry out annual quality diagnoses at the Group's sites, including the Divisions, Plants, and Group companies, to clarify their strengths and weaknesses and share the findings.

In 2017 the quality assurance personnel identified problems faced by the sites regarding the ability to manufacture products with uniform quality (process ability), risk assessment, and on-site education, which led to improvements at the sites. Also, the best practices clarified through the quality diagnoses were shared across the Group.

Responsible Care

Access to
Essential Services

Basic policies

In its business activities, the Showa Denko Group is committed to providing "Access to essential services." This means that we will not discontinue any services that are as indispensable for day-to-day life as water supply without granting a reasonable extension of time.

Activities in 2017

The Showa Denko Group continued offering products and technologies with a high level of customer satisfaction as well as information on them in order to further enhance the trust and loyalty of customers toward the Group. Although not many of our products are offered directly to consumers, we ensured, as usual, the safe and stable supply of sodium hypochlorite used for sterilizing tap water, amino acids used as raw materials for medical and agricultural chemicals, and other products important for essential services.

TOPIC

Ensuring the safety of food to be delivered to consumers : Dry ice

Dry ice or solidified carbon dioxide gas is used mainly for the low-temperature transportation and storage of foodstuffs and medical/chemical products. It is made from carbon dioxide gas generated as a by-product at oil refinery, iron making and ammonia manufacturing facilities. The supply of gas used to make dry ice has been tight in Japan, due to reduced production at the aforementioned facilities, which in turn has reduced the supply of dry ice.

Showa Denko Gas Products Co., Ltd. is building liquefied carbon dioxide manufacturing facilities within the Oita Petrochemical Complex.

For the production of liquefied carbon dioxide, the facilities will make effective use of materials supplied in a stable fashion by the chemical plants located within the Complex. This will eventually contribute to the stable and increased supply of dry ice as well as to more flexible and quick responses to changes in the supply-demand balance.



Dry ice

CSR procurement

CSR procurement

Basic policies

Showa Denko fosters CSR procurement, deeming it important to give consideration to society and the environment based on the following policies throughout its supply chain from the procurement of materials to the manufacture and sale of its products.

- 1) We will take a comprehensive approach in selecting most suitable supplier partners based upon economic rationality by taking into consideration quality, price, delivery period, credibility of management, safety, services, technological competence and attention to environment and society.
- 2) In selecting our supplier partners, we have an open-door policy for business opportunities with sincerity, fairness and honesty, disregarding the nationality, past records of transaction and the corporate group relationship of the candidate companies.
- 3) Our purchasing activities shall be in compliance with laws and regulations, as well as our internal rules.

Activities in 2017

Our CSR procurement aims to mutually improve the corporate value of both our business partners and Showa Denko by sharing with them and requesting their compliance with the Showa Denko Group CSR Procurement Guidelines (<http://www.sdk.co.jp/english/about/procurement/csr.html>). The guidelines provide specific CSR activities that we request our business partners to conduct. In order to confirm their compliance with the guidelines, in 2016 we continued performing three activities: asking business partners to assess their own CSR activities ("self-assessments"), visiting them for inspection purposes ("CSR visits"), and doing follow-up checks on their improvement ("follow-up").

We also spread these CSR procurement activities to our Group companies in Japan and carried out self-assessment surveys of the business partners of five Group companies, with the agreement of those Group companies. Moreover, we created English and Chinese versions of our self-assessment questionnaires for business partners outside Japan and began asking them to fill them in.

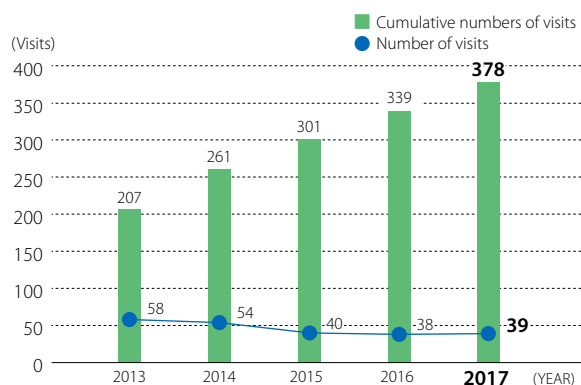
Self-assessments

We ask our business partners to fill out self-assessment questionnaires to check how well they meet the Showa Denko Group CSR Procurement Guidelines. The survey is conducted once every three years in the case of major business partners and at the time of starting transactions in the case of new business partners. We carefully check every response and the analyzed results are fed back to the respondents for continuous improvement.

CSR visits

The objective of CSR visits is to check that CSR activities are conducted properly by our business partners at their actual sites. Purchasing personnel from each plant visit about 40 business partners every year to confirm that their responses to the self-assessment questionnaire are true and correct and to interview them to communicate our policies to and gather necessary information from them.

CSR visits



Follow up

If any area needing improvement is found at any business partner as a result of a self-assessment and/or CSR visit, we work closely together with the partner for improvement to ensure that they will meet the guidelines.

TOPIC

Introducing examples of activities involving a supplier

Showa Denko K.K., at the request of Yanai Co., Ltd., introduced some examples of its CSR- and ISO 26000-related activities to representatives of the company, which is a supplier to the Oita Complex.

The Public Relations Office organized a meeting for the purpose, in which about 20 people from the supplier listened earnestly to the speaker.

The Showa Denko Group will earn even more trust from suppliers and foster mutual prosperity through this kind of activity.



Meeting held for the purpose

Fair Business Practice

Basic policies

The Showa Denko Group conducts business activities based on the belief that the Group must prevent corruption and bribery, comply with antimonopoly laws, and give consideration to society and the environment across its supply chain.

Activities in 2017

Following 2016, we implemented activities as given below.

1. Prevention of Corruption and Bribery

In addition to ensuring that employees abide by our legal guidelines on the prohibition of bribery, we provided education on countryspecific anti-bribery laws for organizations concerned within the Group to make sure that they strictly comply with anti-bribery laws in their respective countries.

2. Conformance to the Antimonopoly Act

We ensured that all organizations concerned within the Group observe the Act on Prohibition of Private Monopolization and Maintenance of Fair Trade ("Antimonopoly Act") and engage in free and fair competition by providing them with education based on our Antimonopoly Act Compliance Manual and rules concerning what they must and must not do when interacting with competitors.

3. Human rights throughout the supply chain

In order to conduct business that takes human rights throughout the supply chain into consideration, we ask our business partners to respect basic human rights, prohibit discrimination, ensure proper work conditions, and protect the rights of the workers through our CSR procurement program. We work together with our partners to comply with these matters.

4. Addressing Conflict Minerals

Purchasing minerals (tin, tantalum, tungsten, and gold) from Congo and its neighboring countries is considered as a large international problem because you fund local armed groups, consequently have a part in local conflicts, and cause violation of human rights and environmental destruction by purchasing them.

We continued our efforts to avoid the use of conflict minerals as part of activities to promote respect for human rights and CSR procurement.

5. Efforts to meet environmental and social demands

The Showa Denko Group responds appropriately and in good faith to meet customer requests to reduce the use of harmful substances and to reassure customers that the Group's products do not use or incorporate harmful chemical substances subject to regulations in the EU or other regions.

Human Rights and Labor Practice

Human Rights and Corporate Ethics

Basic policies

The Showa Denko Group regards respect for human rights as the basis of its business management and is continuously implementing measures to raise all of its employees' awareness of human rights. In Japan, we intensively conduct awareness-raising activities at each site during Human Rights Week every December. We also include a program on human rights and corporate ethics in the programs comprising our level-specific training.

Activities in 2017

The Showa Denko Group has been conducting awareness-raising activities for human rights and corporate ethics across the board.

1 Awareness-raising activities regarding human rights

Awareness-raising activities regarding human rights

In Japan, the Showa Denko Group aims to give all employees 1.5 hours of education on human rights and corporate ethics each year to continue their edification on these topics. In 2017, each base of the Group held study seminars on human right-related issues familiar to employees (prevention of harassment and promotion of communication) and on human right themes that the Ministry of Justice was proposing, such as those related to Dowry issues, LGBT issues, and Hansen's disease.

2 Activities for Corporate Ethics Month

The Showa Denko Group sets every January as Corporate Ethics Month.

In January 2017, all employees, including those of Group companies outside Japan, read Our Code of Conduct and Its Practical Guide and discussed the content at their workplaces. Moreover, each director and manager of the Group signed an oath of compliance with the code of conduct and submitted it to the Group CEO.

3. Corporate Ethics Hotline

We operate the Corporate Ethics Hotline so as to be able to detect from across the Showa Denko Group any incidents of noncompliance or unfair and other behaviors that contravene corporate ethical standards at an early stage in order to resolve them. Group employees along with suppliers, local residents, and other stakeholders can report wrongdoing to online contact points accessible via the intranet and Internet.

► Number of requests for consultation received by the Corporate Ethics Hotline

2013	2014	2015	2016	2017
41	44	46	29	45

* Including anonymous requests.(Showa Denko Group and some overseas group companies)

TOPIC

Establishing a multilingual contact for whistle-blowers

The Showa Denko Group accepts internal reports about noncompliance, unfair behaviors, and other incidents involving Group employees or directors on the intranet and via Showa Denko's Corporate Ethics Hotline service (in Japanese and English). In consideration of the increase in the number of national staff in multiple countries in line with the globalization of our business, we also established an external multilingual contact for whistle-blowers this April.

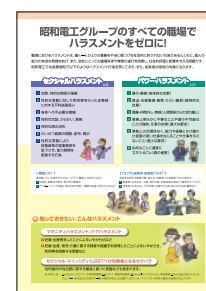
We respect the privacy of individual whistle-blowers and equally prohibit the unfair treatment of reporters by their companies regardless of whether the report was made via the multilingual contact or the Corporate Ethics Hotline.

We will ensure "compliance with social and corporate ethical norms" by detecting noncompliance, unfair behaviors, and other contraventions as early as possible.

4. Handling harassment

To eliminate all kinds of harassment at its workplaces, the Showa Denko Group is continuing to organize awareness-raising and other activities for employees.

In 2017, general employees working at the head office of Showa Denko K.K. received training on harassment. Also, copies of a leaflet on discrimination targeting pregnant women and members of the LGBT community were distributed to employees.



Leaflet designed to help eliminate discrimination



Seminar on harassment

Diversity

Basic policies

The Showa Denko Group has been promoting diversity as one of its management strategies. Under the slogans of "Make the most of the potential of yourself" and "Make the most of the potential of others," we are working to develop the Group's employees and organizations into people and entities able to cooperate with each other while making use of their diverse features, values, and ideas to continue making profit and creating new value.

Activities in 2017

We have been promoting diversity at each of our sites and Group companies in Japan.

1. Activity to change the corporate culture

As its goal for diversity, the Showa Denko Group aims to transform itself into an organization where a diverse range of employees can demonstrate their respective abilities, for which we will improve management practices, communication, and work styles at our workplaces.

In 2017, executives of Showa Denko's sites and Group companies in Japan convened to discuss challenges to be met for diversity promotion. We also conducted other activities to foster reform of the corporate culture as the basis for diversity.

Since 2013, the Group CEO has annually commended Showa Denko's sites and Group companies that have conducted outstanding diversity promotion activities.

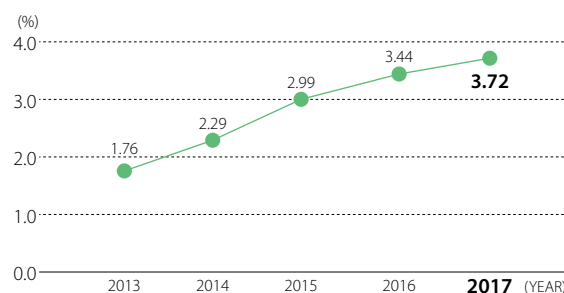
2. Support programs to help female/foreign employees play active roles

The Showa Denko Group works to empower female and non-Japanese employees in Japan.

Showa Denko K.K. aims to increase the percentage of women among section managers and those in higher positions to 5% by 2020 in its action plan made in line with the Act on Advancement of Measures to Support Raising Next-Generation Children. To this end, in 2017, we held training seminars for female mid-level career track employees.

We are also sequentially creating and supplying multilingual versions of internal documents as a means of retaining non-Japanese employees and empowering them to demonstrate more of their abilities.

► Percentage of women in managerial roles at Showa Denko (on an unconsolidated basis)



► Number of female managers (Showa Denko)

2013	2014	2015	2016	2017
14	18	23	26	28

TOPIC

Given CEO's commendation for outstanding diversity promotion in 2017

Showa Denko HD Yamagata K.K. (SHDY) was commended by the CEO for its outstanding diversity promotion in 2017. In the following, the leader of SHDY's manufacturing group 1, which has been implementing an initiative to foster communication with team members with hearing impairments, explains the initiative.

We began implementing the initiative because it seemed group members with hearing impairments were having difficulties understanding what other group members were asking them to do. In an effort to solve this problem, we conducted surveys and found out that the primary language used by members with hearing impairments is Japanese sign language, the grammar of which is different from that of the Japanese language.

To foster smooth communication with these workers, we thought

it would be useful if other employees learned Japanese sign language. Receiving support from those with hearing impairments, we created a video to teach the signs for about 60 words that are commonly used at SHDY. In addition, we asked the group members to write essays to help other employees deepen their understanding of the disability. The essays are posted on SHDY's intranet for use by all group members.

Moreover, we have held seminars on sign language. Through these measures, we were able to foster communication with our colleagues with hearing impairments, which has contributed to making the workplace atmosphere even better.

In the future, we would like to conduct the activity across SHDY, not just for the manufacturing group.



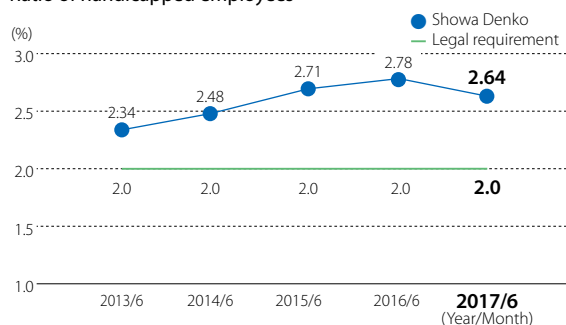
Members of manufacturing group 1, shown expressing "SHDY" in sign language

Human Rights and Labor Practice

3. Employment of handicapped persons

As part of its efforts to promote diversity, the Showa Denko Group continues to proactively employ people with disabilities in Japan. At the head office of Showa Denko K.K., in 2017, we began accepting orders for the complete deletion of data from end-of-life personal computers in addition to orders for the printing of business cards and others, thereby increasing the kinds of jobs for employees with intellectual and mental disabilities.

Ratio of handicapped employees



4. Employment of the aged

In Japan, the Showa Denko Group reemploys retired employees so that they can continue to use their long-accumulated skills and expertise at their workplaces.

Ratio of reemployed employees

2013	2014	2015	2016	2017
88	90	85	89	83

* Include group companies detailer, a person of outside transfer

Development of Human Resources

Basic policies

The Showa Denko Group develops its workforce through a variety of programs.

Training System

Showa Denko's training system comprises mainly of Programs by Role, Programs by Challenge, and Programs by Function, and training suitable for the role and expected career path of each employee is provided annually. To support self-development, we also offer correspondence courses and e-learning programs. Moreover, we proactively develop human resources with international caliber. To this end, we provide employees with opportunities to study foreign languages at universities outside Japan, obtain an MBA, receive practical training at our subsidiaries outside the country, and participate in manager training provided individually by these subsidiaries.

Personnel system

Showa Denko is operating a personnel system that values growth and development. Known as the "MB-OJT system," it incorporates OJT elements into the conventional management-by-objectives (MBO) framework.

In the face-to-face discussion between employees and their supervisors called "commu-cussion," employees and supervisors develop a shared understanding of the employee's targets and performance appraisals and discuss what has and what has not been achieved as well as what lessons were learned for the future. This helps individual employees to achieve self-growth and development.

Employee surveys

The Showa Denko Group conducts employee surveys to quantitatively understand the situations of individual employees and their organizations.

In December 2017, we conducted the second employees' job satisfaction survey, to which 8,894 employees of Group companies in Japan and some abroad responded, for a response rate of 90.7%.

Creating a comfortable workplace

Basic policies

It is important for the growth of our Group that it meets social needs through the lively work of employees who are able to live in harmony with society. The Showa Denko Group is implementing measures to help individual employees lead fulfilling lives as members of the community.

Activities in 2017

1. Work style reform

We continued to implement measures to reduce total working hours and increase the rate of paid leave taking among employees again in 2017.

▶ Trend in working hours (per employee per year)

	2013	2014	2015	2016	2017
Showa Denko	2,009.1	2,023.1	2,002.9	2,008.8	2,011.9
Manufacturing industry average*	2,031.6	2,047.2	2,053.2	2,049.6	2,053.2

* The manufacturing industry average was prepared using the data in the "Annual report on the monthly labour survey" published by the Ministry of Health, Labour and Welfare Annual paid holidays taken (per employee per year)

▶ Annual paid holidays taken (per employee per year)

	2013	2014	2015	2016	2017
Showa Denko	12.8	13.2	13.6	13.6	13.8
Manufacturing industry average*	10.2	10.3	10.1	10.4	10.7

* The manufacturing industry average was prepared using the data in the "General survey on working conditions" published by the Ministry of Health, Labour and Welfare.

2. Promoting sound work-life balance

Showa Denko's work-life balance support programs are designed to meet the needs of employees at different stages of life. In 2016, we continued our efforts to encourage both men and women to use the programs.

▶ Support programs

Main Systems	Description
Childcare leave	Eligible: Employees with one or more years of continuous service who live with dependent children of less than two years of age. Available through the day preceding the child's second birthday.
Shortened working hours for childcare/family care	Eligible: Employees with one or more years of continuous service and who have a child of preschool age or who are eligible for family-care leave. Eligible employees may choose to reduce standard working hours by up to two hours/day.
Cumulative leave	Eligible: Employees who have accumulated leave time (annual paid holidays carried over from year to year). Employees may take days off to participate in a school event (up to and including elementary school children), respond to temporary closing of classes, or nurse a child or family member.
Family care leave	Eligible: Employees with one or more years of continuous service who have a family member requiring nursing care are eligible. Employees may take this leave for a total of 93 days or a total of 12 months over two years from the start of the leave period, depending upon the relationship between the employee and the family member in need of care.

▶ Number of employees who took the advantage of the work-life balance support systems Showa Denko (2017)

	Male	Female	Total
Childcare leave	70	42	112
Family care leave	2	1	3
Shortened working hours for childcare/family care	0	33	33

3. Relations with the labor union

The company and the labor union have established a relationship of trust over many years by establishing (1) Solutions through discussions, (2) Pursuit of stable employment and job satisfaction, and (3) Working together to improve work conditions through company growth and higher profitability as the basis of the labor agreement.

In 2017, in addition to regular dialogues via the Labor-Management Committee, extra meetings were held to discuss a range of themes, such as the compensation system and the review of the relevant rules.

Creating a comfortable workplace

Basic policies

To work vigorously without anxiety, it is important for each of employees to maintain and promote health of his/her own and the whole family throughout lifetime.

Toward this end, we are currently implementing the Showa Denko Group Vivid Health Promotion Plan, a two-year (2017 to 2018) plan aimed mainly at the prevention and improvement of lifestyle-related diseases and the development of sound mental health.

Activities in 2017

To help employees prevent and recover from lifestyle-related diseases, we provided follow-up support, including follow-up care and health guidance, after health checkups. We also implemented the Mental Health Promotion Plan established in 2012 as part of our steady efforts to promote the development of healthy minds.

We also carried out stress checks of employees in line with the Japanese Industrial Safety and Health Act, conducted follow-up activities for those with high mental stress, and made improvements at workplaces found to be highly stressful to promote employees' mental health. In recognition of these activities, Showa Denko in 2018 was again named one of the White 500 companies that are judged as demonstrating excellent health and productivity management. This marked the second consecutive year we made the list.



Performance Data

Classification	Items	Boundaries	Units	2015	2016	2017	Report Number
Corporate ethics and compliance							
Number of requests for consultation received by the Corporate Ethics Hotline		Showa Denko group	cases	46	29	45	62
Labor practices							
Number of employees	Male	Showa Denko K.K.	persons	3,304	3,244	3,198	—
	Female	Showa Denko K.K.	persons	386	403	418	—
	Total number of employees in Japan	Showa Denko K.K.	persons	3,690	3,647	3,616	—
	Male	Consolidated subsidiaries Japan	persons	5,232	5,385	5,345	—
	Female	Consolidated subsidiaries Japan	persons	641	690	742	—
	Total number of employees in Japan	Consolidated subsidiaries Japan	persons	5,873	6,075	6,087	—
	Male	Consolidated subsidiaries Japan	persons	3,366	2,963	3,599	—
	Female	Consolidated subsidiaries Japan	persons	1,322	1,108	1,178	—
	Total number of employees outside of Japan	Consolidated subsidiaries Japan	persons	4,688	4,071	4,777	—
	Total	Consolidated subsidiaries Japan	persons	10,561	10,146	10,864	—
Number of new employees	Male	Showa Denko K.K.	persons	94	104	78	—
	Female	Showa Denko K.K.	persons	21	18	14	—
	Total	Showa Denko K.K.	persons	115	122	92	—
Number of female managers		Showa Denko K.K.	persons	23	26	28	63
	Female managers ratio	Showa Denko K.K.	%	2.99	3.44	3.72	63
Ratio of reemployed employees		Showa Denko K.K.	%	85	89	83	64
Ratio of handicapped employees		Showa Denko K.K.	%	2.71	2.78	2.64	64
Working hours (per employee per year)		Showa Denko K.K.	hours	2,002.9	2,008.8	2,011.9	65
Annual paid holidays taken (per employee per year)		Showa Denko K.K.	days	13.6	13.6	13.8	65
Number of job separation (excluding retirement and permanent transfer)		Showa Denko K.K.	persons	52	68	72	—
Job separation rate (excluding retirement and permanent transfer)		Showa Denko K.K.	%	1.4	1.9	2.0	—
The average age		Showa Denko K.K.	age	40.2	40.1	40.0	—
The average length of continuous employment		Showa Denko K.K.	years	17.2	16.9	16.6	—
The average overtime work per employee per month		Showa Denko K.K.	hours	17.9	18.2	18.8	—
Childcare leave	Male	Showa Denko K.K.	persons	69	65	70	65
	Female	Showa Denko K.K.	persons	41	33	42	65
	Total	Showa Denko K.K.	persons	110	98	112	65
Family care leave	Male	Showa Denko K.K.	persons	0	1	2	65
	Female	Showa Denko K.K.	persons	0	1	1	65
	Total	Showa Denko K.K.	persons	0	2	3	65
Shortened working hours for childcare / family care	Male	Showa Denko K.K.	persons	1	1	0	65
	Female	Showa Denko K.K.	persons	34	54	33	65
	Total	Showa Denko K.K.	persons	35	55	33	65
Ratio of reinstated employees to those who took childcare leave		Showa Denko K.K.	%	100.0	100.0	100.0	—
Labor union	Number of unionized Employees	Showa Denko K.K.	persons	2,868	2,857	2,832	—
	Ratio of unionized Employees	Showa Denko K.K.	%	77.7	78.3	78.3	—
Number of incidents resulting in lost-time injuries		Showa Denko group	cases	4	3	7	56
Infrequency rate of lost-time injuries		Showa Denko K.K.		0.25	0.13	0.39	57
		Showa Denko group		0.15	0.15	0.22	57
CSR procurement							
CSR visits			cases	40	38	39	61
Local community and social contribution							
Education	Dispatched employees as instructors	Showa Denko K.K.	cases	25	20	30	—
		Showa Denko K.K.	man-hours	585	716	768	—
	Accepted interns	Showa Denko K.K.	cases	27	28	31	—
		Showa Denko K.K.	persons	74	85	66	—
Improvement of the environment around the worksites	Cleaning activities	Showa Denko K.K.	cases	120	105	83	—
		Showa Denko K.K.	hours in total	6,780	5,906	5,215	—
Promotion of arts, culture and sports	Cooperation for and granting subsidies to arts, culture and sports: spend	Showa Denko K.K.	thousand yen	5,378	8,800	9,324	—

Classification	Items	Boundaries	Units	2015	2016	2017	Report Number
Exchange with local communities	Events	Showa Denko K.K.	persons	7,691	7,866	6,848	—
	Facilities rented	Showa Denko K.K.	hours	10,762	11,772	14,557	—
	Guided plant tours	Showa Denko K.K.	persons	6,467	7,524	6,697	—
Community development and social welfare	Harmonizing with local economy: spend	Showa Denko K.K.	thousand yen	2,466	2,110	2,132	—
	Aluminum can recycling: participation rate	Showa Denko K.K.	%	98.8	98.9	97.8	—
	Aluminum can recycling: proceeds	Showa Denko K.K.	thousand yen	1,336	888	1,343	—
	Collaborating with NPOs and local organizations: spend	Showa Denko K.K.	thousand yen	120	252	392	—
Environmental conservation							
Discharged amounts of greenhouse gases	CO ₂ (energy source origin)	Showa Denko group	kt-CO ₂	2,538	2,545	2,591	52
	CO ₂ (non-energy source origin)	Showa Denko group	kt-CO ₂	87	85	100	52
	GHGs other than CO ₂	Showa Denko group	kt-CO ₂	62	57	55	52
	Total	Showa Denko group	kt-CO ₂	2,687	2,686	2,746	52
	Showa Denko K.K. / Group companies in Japan	Showa Denko K.K.	kt-CO ₂	2,203	2,211	2,177	—
		Group companies in Japan	kt-CO ₂	484	475	570	—
	Total	Showa Denko group	kt-CO ₂	2,687	2,687	2,747	—
Transportation sector's CO ₂ emissions			kt-CO ₂	22.8	23.5	24.6	53
The amount of water used	Showa Denko K.K.	million m ³	5,535	5,411	5,460	50	
	Group companies in Japan	million m ³	469	461	513	50	
Wastewater volume	Showa Denko K.K.	thousand t	28,671	26,620	28,582	50	
	Group companies in Japan	thousand t	3,704	3,733	4,475	50	
The amount of industrial waste discharge	Showa Denko K.K.	t	20,974	20,038	24,166	50	
	Group companies in Japan	t	10,739	9,360	13,145	50	
Final landfill volumes of industrial waste	Showa Denko K.K.	t	752	254	356	50	
	Group companies in Japan	t	99	69	92	50	
Final landfill rate of industrial waste		Group companies in Japan	%	0.95	0.31	0.38	55
Release of PRTR-listed substances	Into air	Showa Denko K.K.	t	153	148	145	55
		Group companies in Japan	t	262	242	415	55
	Into water	Showa Denko K.K.	t	19	14	15	55
		Group companies in Japan	t	1	1	1	55
	Total	Showa Denko K.K.	t	172	163	160	55
		Group companies in Japan	t	263	243	416	55
Total amounts released of harmful atmospheric pollutants		Showa Denko K.K.	t	14	14	14	54
Discharged amounts of substances with atmospheric impact	SO _x	Showa Denko K.K.	t	360	324	326	54
	NO _x	Showa Denko K.K.	t	1,413	1,255	1,324	54
	Soot and dust	Showa Denko K.K.	t	87	63	71	54
Discharged amounts of substances with water quality impact	COD	Showa Denko K.K.	t	365	360	346	54
	Total phosphorus	Showa Denko K.K.	t	9	8	8	54
	Total nitrogen	Showa Denko K.K.	t	503	480	457	54
Environmental accounting	Total amount of capital investment	Showa Denko K.K.	million yen	2,492	1,962	1,560	51
	Total expenses	Showa Denko K.K.	million yen	3,186	2,651	3,488	51
	Economic benefits	Showa Denko K.K.	million yen	704	794	851	51
Quality Assurance	Annual numbers of complaints (With a score of 100 representing the number of claims in 2015)	Showa Denko group	%	100	71	48	59

*Scope of the Showa Denko Group :

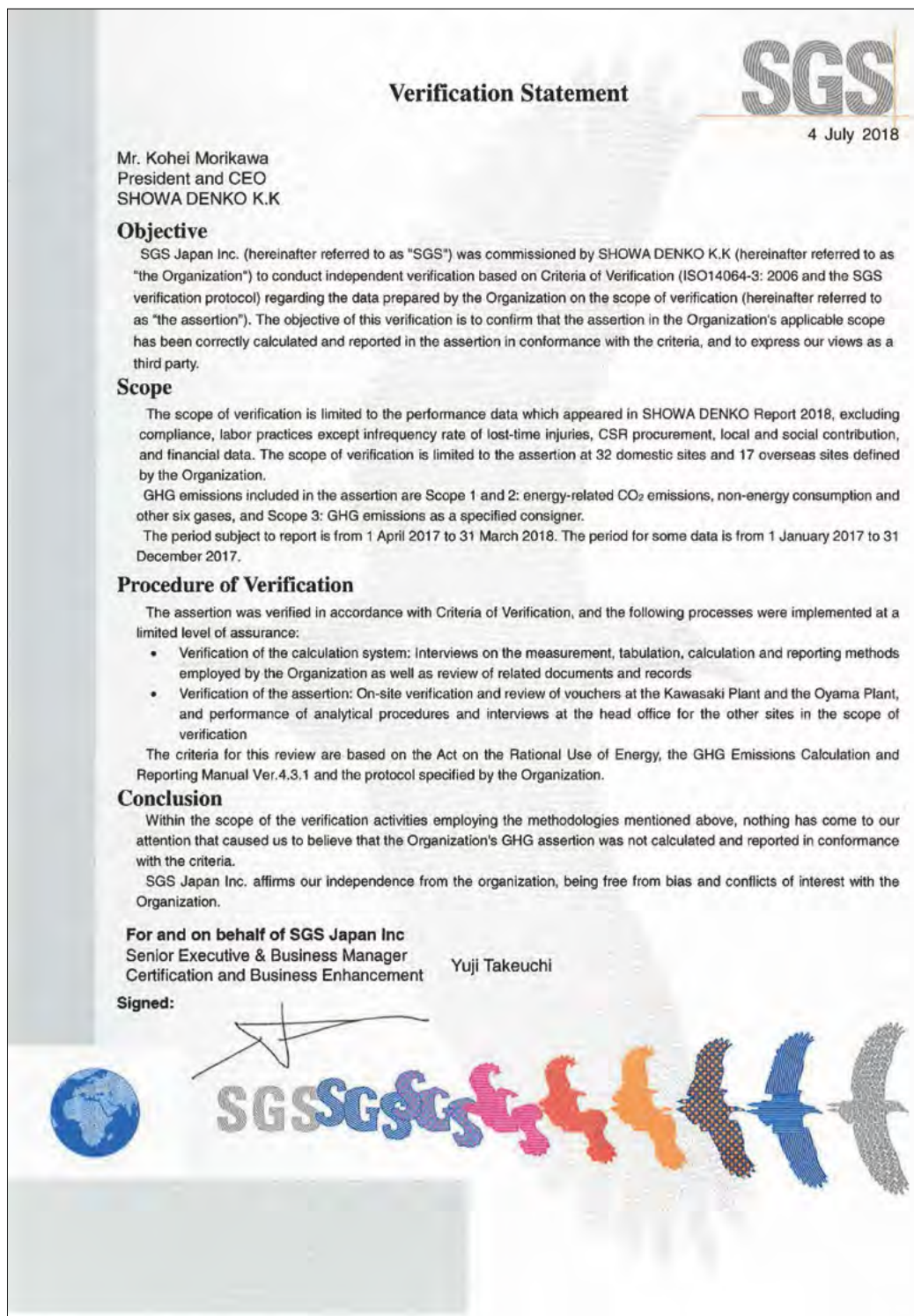
(Japan) SunAllomer Ltd., (2017-), Showa Denko Gas Products Co., Ltd., Showa Denko Ceramics Co., Ltd., (Toyama), Showa Aluminum Can Corp., Showa Denko Packaging Co., Ltd., Niigata Showa K.K. Nippon Polytech Corp., Showa Denko Kenso Co., Ltd., Showa Denko HD Yamagata K.K. and Showa Fine Ceramics Co., Ltd., GHG emissions include those for Showa Denko Electronics K.K. and Tsurusaki Kyodo Doryoku Co., Ltd., and exclude those Niigata Showa K.K. Nippon Polytech Corp., Showa Denko Kenso Co., Ltd., Showa Fine Ceramics Co., Ltd., which are not required to report emissions as emitters designated under the Act on Promotion of Global Warming Countermeasures.

(Overseas) Taiwan Showa Chemicals Manufacturing Co., Ltd.

(including Showa Specialty Gas (Taiwan) Co., Ltd.), Zhejiang Quzhou Juhua Showa Electronic Chemical Materials Co., Ltd., Showa Denko Carbon, Inc., Showa Denko Sichuan Carbon Inc., Showa Denko Aluminum (Nantong) Co., Ltd., SHOTIC Europa Industria de Aluminio Lda., Showa Aluminum Manufacturing Philippines Corporation, Showa Denko (Dalian) Co., Ltd., Showa Denko HD Singapore Pte Ltd., Showa Denko HD (Malaysia) Sdn.Bhd., Showa Denko HD Trace corp., Ganzhou Zhaori Rare Earth New Materials Co., Ltd., Showa Denko Rare-Earth Vietnam Co., Ltd., Shanghai Showa Highpolymer Co., Ltd., (2017-) SHOWA DENKO New Material (Zhuhai) CO., LTD. (2017-)

Third-party Verification

We received the third-party verification about the quantitative data concerning our CSR performance shown in this SHOWA DENKO CSR Report 2018 from SGS Japan Inc.



Financial



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Financial

Message from CFO



We are working to further increase our corporate value

CFO
Toshiharu Kato

In "Project 2020+," we focus on improving our profitability and reducing profit fluctuations. We also set a rough target of 70 billion yen for operating income for 2020. For the financial results for 2017, we achieved record-high operating income, exceeding the target. We will again break the record in terms of operating income for 2018.

We will launch a new medium-term business plan in 2019, under which we aim to raise the level of our net sales and operating income through expansion of individualized businesses and to transform the Group into one that can record high operating income in a stable manner.

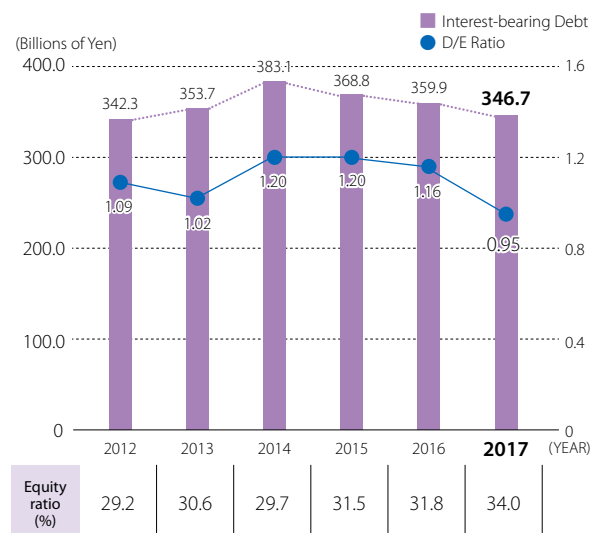
To this end, we must make timely investments and avoid missing any opportunities to expand individualized businesses for the growth of the Group. Moreover, we need to clarify the capital cost-based selection criteria for plant and equipment investments in order to make investments in a more selective manner. Toward increasing the profit margin and improving the balance sheet, we will implement financial strategies linked with management issues. The Showa Denko Group has long been working to improve its financial structure. In consideration of the recent fundraising environment, we are conducting examinations to stabilize our D/E ratio at around 0.7 for the successful implementation of financial measures.

As for free cash flow, we will maximize it by enhancing our earning power in addition to increasing our productivity and business management efficiency. At the same time, we will conduct examinations for the well-balanced use of our funds, including using

them to maintain the stability of our financial standing, make spot investments, foster M&A for the expansion of individualized businesses, and return profit to shareholders.

For greater corporate value, we will make ceaseless improvement efforts and become a corporate group that gives satisfaction to all its stakeholders.

Interest-bearing Debt



Financial Highlights (Showa Denko K.K. and Consolidated Subsidiaries)

(million yen)

For the year	2012	2013	2014	2015	2016	2017
Net sales	739,675	847,803	872,785	775,732	671,159	780,387
Operating income (loss)	28,108	25,953	20,551	33,508	42,053	77,818
Ratio of Operating income to sales (%)	3.8	3.1	2.4	4.3	6.3	10.0
Net income (loss)	23,448	23,488	21,731	32,050	38,690	63,962
Net income attribute to owners of the parent	9,368	9,065	2,929	921	12,305	33,470
Net cash provided by operating activities	53,310	63,565	66,996	61,170	68,949	67,284
Net cash provided by (used in) investing activities	△ 41,741	△ 55,203	△ 46,876	△ 42,497	△ 53,754	△ 29,914
Free cash flow	11,569	8,362	20,120	18,674	15,195	37,369
Net cash provided by (used in) financing activities	△ 20,150	△ 6,805	△ 24,856	△ 21,336	△ 13,220	△ 18,370
R&D expenditures	20,633	20,435	20,362	20,289	17,313	18,539
Capital expenditures	42,503	44,370	47,318	44,059	39,276	41,279
Depreciation and amortization	46,232	39,779	40,673	42,137	38,761	38,454
At year-end	2012	2013	2014	2015	2016	2017
Total assets	933,162	985,771	1,009,843	940,494	932,698	1,024,727
Total net assets	314,966	345,811	319,087	308,142	311,231	364,997
Shareholders' equity ratio (%)	29.2	30.6	29.7	31.5	31.8	34.0
Return on equity (ROE) (%)	3.6	3.2	1.0	0.3	4.1	10.4
Interest-bearing debt	342,262	353,686	383,124	368,835	359,929	346,726
Debt/equity ratio (Times)	1.09	1.02	1.20	1.20	1.16	0.95
Per share (yen)	2012	2013	2014	2015	2016	2017
Net income—primary	6.26	6.06	1.99	6.45	86.27	234.84
Cash dividends (applicable to the period*)	3	3	3	3	—	50

(Note) SDK consolidated every ten shares of its common stock into one share on July 1, 2016. The above-mentioned numbers in the section of "Per share (yen)" are calculated on the assumption that the share consolidation had been carried out at the beginning of 2016.

*SDK resolved and paid a dividend of ¥30 per share based on the record date of May 11, 2017 at the extraordinary general meeting of shareholders which was held in June 2017.

Management's Discussion and Analysis

Results of Operations

Consolidated net sales in 2017 totaled ¥780,387 million (US\$6,906 million), an increase of ¥109,228 million, or 16.3%, over the previous year. Sales grew in all segments. In the Petrochemicals segment, sales rose due to increases in the prices of products and the consolidation of SunAllomer Ltd. in the second half of 2016. In the Inorganics segment, sales rose due to an increase in shipment volumes of graphite electrodes, improved market conditions for graphite electrodes in China in the second half of 2017, and the new consolidation of SHOWA DENKO CARBON Holding GmbH in the fourth quarter of 2017 following the acquisition and business integration of former SGL GE Holding GmbH, a graphite electrode manufacturer. The cost of sales went up ¥57,784 million, or 10.6%, to ¥602,778 million (US\$5,334 million), reflecting the increase in net sales.

Selling, general and administrative expenses rose ¥15,680 million, or 18.6%, to ¥99,791 million (US\$883 million), due partly to the higher transportation cost caused by the increase in net sales. R&D expenditures rose ¥1,225 million to ¥18,539 million (US\$164 million).

Operating income for the Group increased substantially, by 85.0%, or ¥35,765 million, to ¥77,818 million (US\$689 million). The Petrochemicals segment recorded higher income due to a strong market caused by a tight supply-demand balance in East Asia. The Inorganics segment also recorded higher income due to growth in shipment volumes for graphite electrodes resulting from the business integration and the stiffening graphite electrode market in China, in addition to the effects of lower production costs for graphite electrodes. The Electronics, Chemicals, and Aluminum segments also recorded higher income.

Information by Business Segment

Petrochemicals

Production of ethylene rose from the previous year. Sales of olefins increased due to the higher prices for products caused by a rise in the raw naphtha price and strong demand. Sales of organic chemicals improved due to higher shipment volumes and a rise in prices of products, including ethyl acetate and vinyl acetate. The consolidation of SunAllomer Ltd. in the second half of 2016 also drove up sales in this segment.

As a result, sales in the Petrochemicals segment increased ¥65,345 million, or 35.2%, over the previous year to ¥251,128 million (US\$2,222 million). This segment recorded operating income of ¥33,357 million (US\$295 million), up ¥12,667 million, or 61.2% over the previous year.

Chemicals

The production of liquefied ammonia and high-purity gases for electronics increased from the previous year. In the basic chemicals business, sales of liquefied ammonia rose due to higher shipment volumes. Sales of chloroprene rubber improved due to a high level of shipment volumes and a strong market. Sales of acrylonitrile increased due to a rise in prices. Sales of electronic chemicals rose due to higher shipment volumes of high-purity gases for electronics caused by an increase in production in the semiconductor and display panel industries. Sales of functional chemicals went up due to higher shipment volumes for use in the domestic automotive industry. However, sales of industrial gases decreased slightly.

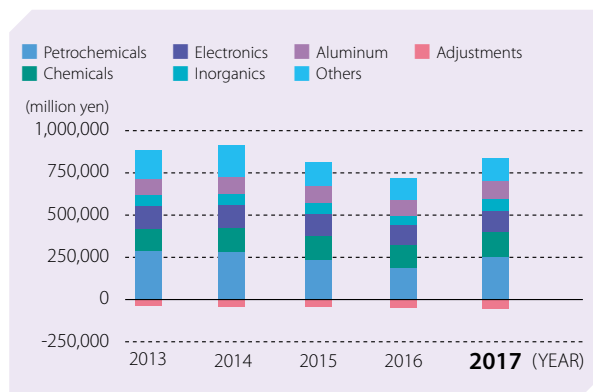
As a result, sales for the Chemicals segment increased ¥14,229 million, or 10.6%, to ¥148,758 million (US\$1,316 million). The segment recorded operating income of ¥16,474 million (US\$146 million), up ¥2,650 million, or 19.2% over the previous year.

Electronics

Production of HD media in 2017 increased from the previous year due to higher shipment volumes of media for use in data centers. As a result, sales of HD media went up. Sales of rare earth magnetic alloys and compound semiconductors rose from the previous year due to higher shipment volumes. Sales of lithium-ion battery (LIB) materials, which was transferred from the Others segment to the Electronics segment at the beginning of 2017, decreased due to lower shipment volumes to China caused by changes in the subsidy policy for electric vehicles.

As a result, the Electronics segment's sales rose ¥2,602 million, or 2.2%, over the previous year to ¥123,064 million (US\$1,089 million). The segment recorded operating income of ¥21,925 million (US\$194 million), up ¥6,910 million, or 46.0% over the previous year.

Net Sales by Segment



Inorganics

Production of graphite electrodes in 2017 went up compared with the previous year due to an improvement in the situation of the electric steel industry as the customer. Sales of graphite electrodes rose due to the acquisition and consolidation of SGL GE Holding GmbH (currently SHOWA DENKO CARBON Holding GmbH) in the fourth quarter of 2017, in addition to higher sales volumes and a rise in prices for graphite electrodes in the Chinese market during the second half of 2017. Sales of ceramics rose due to an increase in shipment volumes for the electronics industry.

As a result, sales in the Inorganics segment increased ¥22,572 million, or 44.4% over the previous year, to ¥73,442 million (US\$650 million). The segment recorded operating income of ¥7,089 million (US\$63 million), an improvement of ¥12,848 million from the previous year, due mainly to higher operating income earned by the graphite electrode business.

Aluminum

Production of high-purity foil for aluminum electrolytic capacitors increased from the previous year. Shipment volumes and sales of rolled products rose due to higher shipment volumes of high-purity foil for aluminum electrolytic capacitors for industrial equipment and automotive applications. Sales of aluminum specialty components went up, due partly to higher shipment volumes of the large aluminum extrusions and aluminum cylinders used in laser-beam- printers. Sales of aluminum cans increased due to higher shipment volumes recorded by Hanacans Joint Stock Company in Vietnam.

As a result, sales in the Aluminum segment increased ¥6,864 million, or 7.0% over the previous year, to ¥105,439 million (US\$933 million). Operating income for the segment rose ¥2,281 million, or 51.6% over the previous year, to ¥6,697 million (US\$59 million).

Others

Sales in the Others segment increased ¥4,884 million, or 3.8% over the previous year, to ¥133,624 million (US\$1,183 million) due mainly to improved sales from Shoko Co., Ltd. Operating income for this segment rose by ¥10 million, or 1.6% over the previous year, to ¥633 million (US\$6 million).

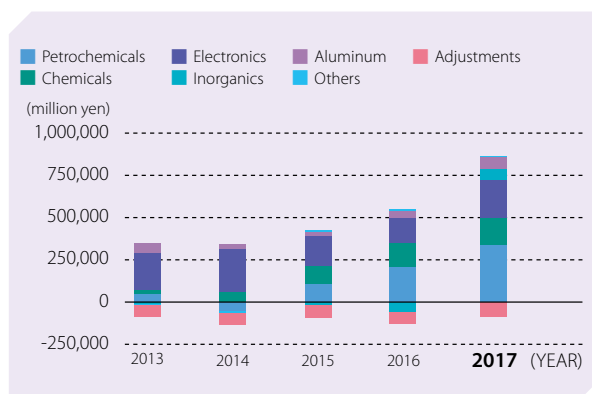
Information by Geographic Area

Sales in Japan

Sales in the Petrochemicals segment increased due to a rise in market prices of products, the result of higher raw naphtha prices and the consolidation of SunAllomer Ltd. in the second half of 2016. Sales in the Chemicals segment went up due to an increase in shipment volumes of high-purity gases for electronics caused by a production increase in the semiconductor and display panel industries, higher shipment volumes of liquefied ammonia and a rise in the market price of acrylonitrile. Sales figures for the Electronics segment were higher due to increased shipment volumes of compound semiconductors, rare earth magnetic alloys and HD media. In the Inorganics segment, sales rose due to an increase in sales volumes for graphite electrodes and an increase in shipment volumes in ceramics for electronics. Sales in the Aluminum segment increased due to higher sales of high-purity foil for aluminum electrolytic capacitors and aluminum specialty components, including large extrusions. Sales figures for the Others segment rose due to an increase in sales from Shoko Co., Ltd.

As a result, consolidated sales from operations in Japan rose ¥73,523 million, or 17.1%, to ¥504,162 million (US\$4,462 million).

► Operating Income by Segment



Management's Discussion and Analysis

Sales in Asia (excluding Japan)

Sales in the Petrochemicals segment in Asia increased due to a rise in market prices for olefins. Sales in Asia for the Chemicals segment also rose. For the basic chemicals business, sales of chloroprene rubber rose due to an increase in export volumes and higher market prices. For the electronic chemicals business, sales went up due to an increase in shipment volumes of high-purity gases for electronics caused by higher production in the semiconductor and display panel industries in East Asia. For the functional chemicals business, sales increased due to a surge in shipment volumes of products to the Chinese market. The Electronics segment's sales rose due to higher shipment volumes of HD media resulting from the bottoming out of demand for HDDs used in PCs and an increase in shipment volumes of HDDs for data centers. Sales in the Inorganics segment rose due to higher market prices for graphite electrodes in China. Sales in the Aluminum segment increased due to higher shipment volumes recorded by Hanacans Joint Stock Company in Vietnam. Sales in the Others segment decreased due to a lower sales at Shoko Co., Ltd. and Shoko (Shanghai) Co., Ltd.

As a result, consolidated sales from operations in Asia (excluding Japan) increased ¥22,018 million, or 10.6% over the previous year, to ¥230,644 million (US\$2,041 million).

Sales in the Rest of the World

Sales in the Inorganics segment rose sharply due mainly to the consolidation of SHOWA DENKO CARBON Holding GmbH in the fourth quarter of 2017 and an increase in sales recorded by Showa Denko Carbon Inc. in the U.S.

As a result, consolidated sales from operations in the rest of the world increased ¥13,687 million, or 42.9% over the previous year, to ¥45,580 million (US\$403 million).

Other Income (Expenses) and Net Income Attributable to Owners of the Parent

The gap between interest expenses and interest and dividends income improved ¥384 million to expenses of ¥1,207 million (US\$11 million), mainly from an increase in interest income.

We recorded a loss on the equity in earnings of unconsolidated subsidiaries and affiliates to which the equity method is applied of ¥7,689 million (US\$68 million), a fall of ¥12,017 million. This fall was due mainly to the recording of a loss on the equity in earnings of unconsolidated subsidiaries and affiliates to which the equity method is applied amounting to ¥9,948 million from PT. Indonesia Chemical Alumina (ICA), the result of impairment losses on ICA's alumina plant following the Company's decision to sell all of its shares in ICA. The consolidation of SunAllomer Ltd. also reduced the equity in earnings of unconsolidated subsidiaries and affiliates to which equity method is applied.

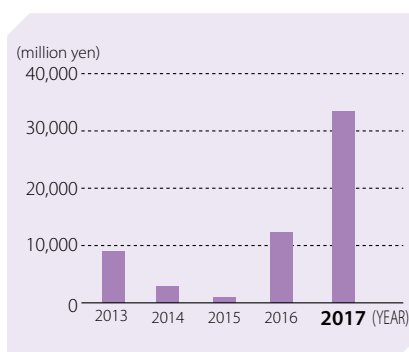
For foreign exchange gain (losses), the group recorded foreign exchange losses of ¥2,791 million (US\$25 million), a drop of ¥1,133 million due mainly to the recording of a foreign exchange loss in a subsidiary in Taiwan caused by the appreciation of the New Taiwan dollar against the U.S. dollar.

We recorded a loss of ¥4,430 million (US\$39 million), net, on retirement and sales of noncurrent assets, a fall of ¥1,207 million, due mainly to the recording of expenses and retirement losses resulting from refurbishment to make effective use of Yokohama Plant, which belongs to the Inorganics segment. We also recorded a loss of ¥7,204 million (US\$64 million) for the impairment loss, an improvement of ¥8,439 million, due partly to our recognition of an impairment loss amounting to ¥2,312 million as the cost of refurbishment to make effective use of Yokohama Plant and recognition of another impairment loss of ¥1,555 million from the Chichibu Plant, which belongs to the Electronics segment.

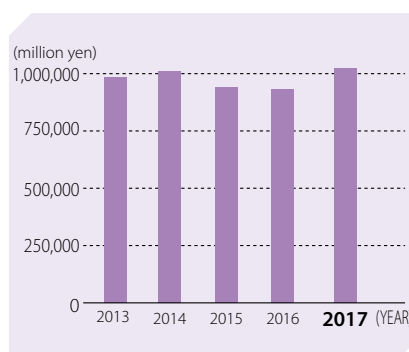
Gain on sales of investment securities increased ¥336 million, to ¥408 million (US\$4 million).

The sum of extraordinary losses, other than those mentioned above, came to ¥9,418 million (US\$83 million), due mainly to posting of a loss on provision of the allowance for doubtful accounts and others concerning ICA.

► Net Income Attributable to Owners of the Parent



► Total Assets



Overall, the total of other income (expenses), net, i.e., the total of non-operating income (expenses) and extraordinary income (expenses), net, fell by ¥6,678 million, to a loss of ¥31,202 million (US\$276 million).

The total of the other expenses posted for Yokohama Plant, as mentioned above, amounted to about ¥7,600 million.

As a result, the Company recorded income before taxes and noncontrolling interests of ¥46,616 million (US\$413 million), up ¥29,087 million from the previous year. Income taxes increased ¥7,142 million to ¥10,833 million (US\$96 million) due to the improvement in the Company's performance. Consequently, the Company recorded net income attributable to owners of the parent of ¥33,470 (US\$296 million), up ¥21,166 million over the previous year.

Financial Position

Total Assets

Total assets at the end of 2017 rose ¥92,029 million from the end of the previous year, to ¥1,024,727 million (US\$9,068 million), due mainly to the increase in notes and accounts receivable, inventories, and property, plant and equipment resulting from the acquisition of a graphite electrode company. Cash and deposits increased ¥7,334 million from the end of the previous year to ¥77,248 million (US\$684 million).

Net property, plant and equipment increased ¥18,765 million to ¥505,900 million (US\$4,477 million), due mainly to the recent consolidation of SHOWA DENKO CARBON Holding GmbH. Total investments and other assets increased by ¥3,000 million, to ¥113,486 million (US\$1,004 million), due partly to the appreciation in the market valuation of investment securities.

Liabilities

Interest bearing debt fell by ¥13,203 million from the end of the previous year to ¥346,726 million (US\$3,068 million). However, total liabilities rose ¥38,263 million, to ¥659,730 million (US\$5,838 million), due partly to the increase in accounts payable-trade resulting from the recent consolidation of SHOWA DENKO CARBON Holding GmbH.

Net Assets

Net assets rose ¥53,766 million from the end of the previous year, to ¥364,997 million (US\$3,230 million), due partly to the posting of net income attributable to owners of the parent and an increase in the valuation difference on available-for-sale securities resulting from a rise in stock prices.

Capital Expenditures

Capital expenditures increased ¥2,003 million from the previous year, to ¥41,279 million (US\$365 million). Capital expenditures for the electronic chemicals business decreased from the previous year, though they were still at a high level. However, we expanded production capacity to produce lithium-ion battery materials and for Hanacans Joint Stock Company in Vietnam to produce more aluminum cans. We also began construction work for a variety of purposes, including production improvements, greater efficiency, maintenance and environmental preservation.

Cash Flows

Net cash provided by operating activities decreased ¥1,666 million from the previous year with proceeds of ¥67,284 million (US\$595 million), due partly to the increase in working capital, despite the rise in operating income. Net cash used in investing activities decreased ¥23,840 million from the previous year for the payment of ¥29,914 million (US\$265 million), due partly to a decrease in payments into time deposits and an increase in proceeds from sales of investment securities. As a result, free cash flow ended up with proceeds of ¥37,369 million (US\$331 million), an improvement of ¥22,174 million.

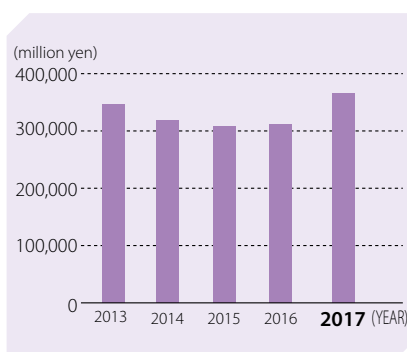
Net cash used in financing activities rose ¥5,151 million due to a reduction from the previous year in interest bearing debt, and ended up with the payment of ¥18,370 million (US\$163 million).

Consequently, taking the effects of exchange rate fluctuations into account, cash and cash equivalents at the end of 2017 increased ¥20,648 million to ¥76,833 million (US\$680 million) over the end of the previous year.²¹

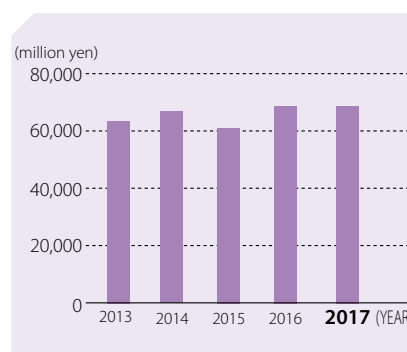
► Total Net Assets



► Interest Bearing Debt



► Cash Flows from Operating Activities



Consolidated financial statements

Consolidated Balance Sheets

At December 31, 2017 and 2016

	Millions of yen		Thousands of U.S. dollars
ASSETS	2017	2016	2017
Current assets			
Cash and deposits	¥ 77,248	¥ 69,914	\$ 683,613
Notes and accounts receivable	192,551	157,846	1,703,992
Allowance for doubtful accounts	(2,849)	(699)	(25,216)
Inventories	114,913	91,347	1,016,926
Deferred tax assets	6,898	4,092	61,042
Other current assets	16,581	12,576	146,732
Total current assets	405,341	335,077	3,587,089
Property, plant and equipment			
Land	245,062	242,816	2,168,689
Buildings and structures	287,798	267,889	2,546,887
Machinery, equipment and vehicles	900,779	791,398	7,971,499
Construction in progress	16,548	49,575	146,438
	1,450,187	1,351,678	12,833,513
Less : Accumulated depreciation	(944,287)	(864,544)	(8,356,525)
Net property, plant and equipment	505,900	487,135	4,476,988
Investments and other assets			
Investment securities	89,167	74,951	789,091
Long-term loans	1,217	6,922	10,770
Net defined benefit asset	232	365	2,053
Deferred tax assets	1,080	9,115	9,554
Other	32,020	27,940	283,362
Allowance for doubtful accounts	(10,229)	(8,807)	(90,526)
Total investments and other assets	113,486	110,486	1,004,304
Total assets	¥ 1,024,727	¥ 932,698	\$ 9,068,380

	Millions of yen		Thousands of U.S. dollars
LIABILITIES AND NET ASSETS	2017	2016	2017
Current liabilities			
Short-term debt	¥ 91,699	¥ 71,895	\$ 811,499
Current portion of long-term debt	57,432	58,234	508,250
Notes and accounts payable	171,719	143,556	1,519,642
Income taxes payable	7,374	3,890	65,260
Provision for repairs	4,143	38	36,661
Provision for bonuses	2,949	2,253	26,100
Provision for stock payments	5	25	47
Provision for business structure improvement	137	382	1,214
Provision for Niigata Minamata Disease	—	118	—
Other current liabilities	38,206	30,402	338,110
Total current liabilities	373,666	310,792	3,306,781
Noncurrent liabilities			
Long-term debt less current portion	197,594	229,800	1,748,622
Deferred tax liabilities	12,774	4,041	113,042
Provision for repairs	117	2,759	1,035
Provision for director retirement	—	73	—
Provision for stock payments	96	59	852
Provision for business structure improvement	3,574	1,121	31,628
Provision for loss on guarantees	2,640	—	23,362
Net defined benefit liability	18,966	21,923	167,843
Deferred tax liabilities for land revaluation	32,488	33,144	287,507
Other noncurrent liabilities	17,814	17,754	157,646
Total noncurrent liabilities	286,064	310,675	2,531,539
Contingent liabilities			
Net assets			
Shareholders' equity			
Capital stock			
Authorized, 330,000,000 shares			
Issued, 2017– 149,711,292 shares	140,564	—	1,243,925
Issued, 2016– 149,711,292 shares	—	140,564	—
Capital surplus	61,663	62,033	545,691
Retained earnings	96,142	65,358	850,814
Less: Treasury stock at cost, 2017– 7,187,545 shares	(10,503)	—	(92,944)
Less: Treasury stock at cost, 2016– 7,192,815 shares	—	(10,502)	—
Total shareholders' equity	287,866	257,453	2,547,486
Accumulated other comprehensive income			
Valuation difference on available-for-sale securities	16,547	4,519	146,433
Deferred gains or losses on hedges	3,781	320	33,464
Revaluation reserve for land	29,541	31,026	261,427
Foreign currency translation adjustments	15,452	14,239	136,747
Remeasurements of defined benefit plans	(4,716)	(10,996)	(41,732)
Total accumulated other comprehensive income	60,606	39,107	536,340
Non-controlling interests	16,524	14,671	146,234
Total net assets	364,997	311,231	3,230,060
Total liabilities and net assets	¥ 1,024,727	¥ 932,698	\$ 9,068,380

Consolidated financial statements

Consolidated Statements of Income

For the years ended December 31, 2017 and 2016

	Millions of yen		Thousands of U.S. dollars
	2017	2016	2017
Net sales	¥ 780,387	¥ 671,159	\$ 6,906,077
Cost of sales	602,778	544,994	5,334,317
Gross profit	177,609	126,164	1,571,760
Selling, general and administrative expenses	99,791	84,111	883,102
Operating income	77,818	42,053	688,658
Other income (expenses)			
Interest and dividends income	1,893	1,641	16,755
Equity in earnings (losses) of unconsolidated subsidiaries and affiliates	(7,689)	4,328	(68,042)
Gain on sales of investment securities, net	408	72	3,611
Loss on valuation of investment securities	(50)	(66)	(445)
Foreign exchange gains (losses)	(2,791)	(1,658)	(24,702)
Rent income on noncurrent assets	1,381	1,506	12,225
Gain (loss) on sales of noncurrent assets, net	880	808	7,787
Interest expenses	(3,100)	(3,231)	(27,435)
Loss on retirement of noncurrent assets	(5,310)	(4,030)	(46,990)
Impairment loss	(7,204)	(15,644)	(63,753)
Gain on bargain purchase	3,115	686	27,571
Provision of allowance for doubtful accounts	(2,648)	—	(23,433)
Provision for business structure improvement	(2,656)	(732)	(23,506)
Provision for loss on guarantees	(2,640)	—	(23,362)
Other, net	(4,792)	(8,205)	(42,407)
Total	(31,202)	(24,524)	(276,128)
Income before income taxes and Non-controlling interests	46,616	17,529	412,531
Income taxes			
Current	8,053	3,168	71,264
Deferred	2,780	523	24,600
Net income	35,783	13,838	316,667
Net income attributable to non-controlling interests	2,313	1,533	20,469
Net income attributable to owners of the parent	¥ 33,470	¥ 12,305	\$ 296,198

	Yen		Yen U.S. dollars
Per share amounts			
Net income – primary	¥ 234.84	¥ 86.27	\$ 2.08
Net income – fully diluted	—	—	—
Cash dividends (applicable to the period)	80.00	—	0.71

Notes: 1. Net income per share has been computed based on the average number of shares of common stock outstanding during the respective fiscal year.

Diluted net income per share for 2017 and 2016 were not disclosed because there were no dilutive shares.

Notes: 2. SDK determined the payment of the dividend of ¥30.00 (US\$ 0.27) per share based on the record date of May 11, 2017.

This was done at the extraordinary general meeting of shareholders held on June 27, 2017, and is included in the dividends per share for the fiscal year ended December 31, 2017. See notes to financial statements.

Consolidated Statements of Comprehensive Income

For the years ended December 31, 2017 and 2016

	Millions of yen		Thousands of U.S. dollars
	2017	2016	2017
Net income	¥ 35,783	¥ 13,838	\$ 316,667
Other comprehensive income:			
Valuation difference on available-for-sale securities	12,133	516	107,369
Deferred gains or losses on hedges	3,479	629	30,791
Revaluation reserve for land	—	1,824	—
Foreign currency translation adjustments	1,455	(4,520)	12,878
Remeasurements of defined benefit plans, net of tax	6,294	(6,167)	55,700
Share of other comprehensive income of unconsolidated subsidiaries and affiliates accounted for using equity method	22	41	197
Total other comprehensive income (loss)	¥ 23,384	¥ (7,678)	\$ 206,937
Comprehensive income	¥ 59,167	¥ 6,160	\$ 523,604
Comprehensive income attributable to:			
Owners of parent	56,581	4,807	500,720
Non-controlling interests	2,586	1,353	22,884

See notes to financial statements.

Consolidated financial statements

Consolidated Statements of Changes in Net Assets

For the years ended December 31, 2017 and 2016

	Thousands	Millions of yen										
	Number of shares of capital stock	Capital stock	Capital surplus	Retained earnings	Treasury stock	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Revaluation reserve for land	Foreign currency translation adjustments	Benefits plans	Non-controlling interests	Total net assets
Balance at December 31, 2015	1,497,113	¥ 140,564	¥ 62,221	¥ 55,202	¥ (10,157)	¥ 3,927	¥ (326)	¥ 31,307	¥ 18,611	¥ (4,835)	¥ 11,629	¥ 308,142
Dividends from surplus	—	—	—	(4,285)	—	—	—	—	—	—	—	(4,285)
Net income (loss) attributable to owners of the parent	—	—	—	12,305	—	—	—	—	—	—	—	12,305
Purchase of treasury stock	—	—	—	—	(345)	—	—	—	—	—	—	(345)
Disposal of treasury stock	—	—	(0)	—	0	—	—	—	—	—	—	0
Increase by increase of consolidated subsidiaries	—	—	—	70	—	—	—	—	—	—	—	70
Decrease by increase of consolidated subsidiaries	—	—	—	—	—	—	—	—	—	—	—	—
Change in treasury shares of parent arising from transactions with non-controlling shareholders	—	—	(188)	—	—	—	—	—	—	—	—	(188)
Reversal of revaluation reserve for land	—	—	—	2,093	—	—	—	—	—	—	—	2,093
Other	(1,347,402)	—	—	(27)	—	—	—	—	—	—	—	(27)
Net changes of items other than shareholders' equity	—	—	—	—	—	592	646	(281)	(4,372)	(6,161)	3,042	(6,535)
Balance at December 31, 2016	149,711	¥ 140,564	¥ 62,033	¥ 65,358	¥ (10,502)	¥ 4,519	¥ 320	¥ 31,026	¥ 14,239	¥ (10,996)	¥ 14,671	¥ 311,231
Dividends from surplus	—	—	—	(4,285)	—	—	—	—	—	—	—	(4,285)
Net income (loss) attributable to owners of the parent	—	—	—	33,470	—	—	—	—	—	—	—	33,470
Purchase of treasury stock	—	—	—	—	(11)	—	—	—	—	—	—	(11)
Disposal of treasury stock	—	—	0	—	10	—	—	—	—	—	—	10
Increase by increase of consolidated subsidiaries	—	—	—	229	—	—	—	—	—	—	—	229
Decrease by increase of consolidated subsidiaries	—	—	—	(97)	—	—	—	—	—	—	—	(97)
Change in treasury shares of parent arising from transactions with non-controlling shareholders	—	—	(370)	—	—	—	—	—	—	—	—	(370)
Reversal of revaluation reserve for land	—	—	—	1,486	—	—	—	—	—	—	—	1,486
Other	—	—	—	(20)	—	—	—	—	—	—	—	(20)
Net changes of items other than shareholders' equity	—	—	—	—	—	12,028	3,461	(1,485)	1,214	6,281	1,854	23,353
Balance at December 31, 2017	149,711	¥ 140,564	¥ 61,663	¥ 96,142	¥ (10,503)	¥ 16,547	¥ 3,781	¥ 29,541	¥ 15,452	¥ (4,716)	¥ 16,524	¥ 364,997

	Thousands	Thousands of U.S. dollars (Note 4)										
	Number of shares of capital stock	Capital stock	Capital surplus	Retained earnings	Treasury stock	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Revaluation reserve for land	Foreign currency translation adjustments	Benefits plans	Non-controlling interests	Total net assets
Balance at December 31, 2016	149,711	\$ 1,243,925	\$ 548,968	\$ 578,390	\$ (92,938)	\$ 39,987	\$ 2,835	\$ 274,565	\$ 126,006	\$ (97,312)	\$ 129,831	\$ 2,754,256
Dividends from surplus	—	—	—	(37,916)	—	—	—	—	—	—	—	(37,916)
Net income (loss) attributable to owners of the parent	—	—	—	296,198	—	—	—	—	—	—	—	296,198
Purchase of treasury stock	—	—	—	—	(98)	—	—	—	—	—	—	(98)
Disposal of treasury stock	—	—	0	—	91	—	—	—	—	—	—	91
Increase by increase of consolidated subsidiaries	—	—	—	—	—	—	—	—	—	—	—	2,022
Decrease by increase of consolidated subsidiaries	—	—	—	2,022	—	—	—	—	—	—	—	(856)
Change in treasury shares of parent arising from transactions with non-controlling shareholders	—	—	(3,277)	(856)	—	—	—	—	—	—	—	(3,277)
Reversal of revaluation reserve for land	—	—	—	13,152	—	—	—	—	—	—	—	13,152
Other	—	—	—	(175)	—	—	—	—	—	—	—	(175)
Net changes of items other than shareholders' equity	—	—	—	—	—	106,446	30,629	(13,137)	10,741	55,580	16,403	206,663
Balance at December 31, 2017	149,711	\$ 1,243,925	\$ 545,691	\$ 850,814	\$ (92,944)	\$ 146,433	\$ 33,464	\$ 261,427	\$ 136,747	\$ (41,732)	\$ 146,234	\$ 3,230,060

See notes to financial statements.

Consolidated Statements of Cash Flows

For the years ended December 31, 2017 and 2016

	Millions of yen		Thousands of U.S. dollars
	2017	2016	2017
Cash flows from operating activities			
Income before income taxes and Non-controlling interests	¥ 46,616	¥ 17,529	\$ 412,531
Adjustments for:			
Depreciation and amortization	38,454	38,761	340,303
Impairment loss	7,204	15,644	63,753
Amortization of negative goodwill	(12)	(11)	(106)
Increase (decrease) in allowance for doubtful accounts	2,757	(6,441)	24,394
Increase (decrease) in net defined benefit liability	(10,610)	6,744	(93,889)
Interest and dividends income	(1,893)	(1,641)	(16,755)
Interest expenses	3,100	3,231	27,435
Equity in (earnings) losses of unconsolidated subsidiaries and affiliates	7,689	(4,328)	68,042
Loss (gain) on sales and valuation of investment securities	(358)	(6)	(3,165)
Loss on retirement of noncurrent assets	5,310	4,030	46,990
Loss (gain) on sales of noncurrent assets	(880)	(808)	(7,787)
Decrease (increase) in notes and accounts receivable-trade	(23,253)	(2,380)	(205,781)
Decrease (increase) in inventories	(12,005)	20,112	(106,235)
Increase (decrease) in notes and accounts payable-trade	10,172	(10,315)	90,021
Other, net	2,089	(10,044)	18,485
Subtotal	74,381	70,076	658,235
Interest and dividends income received	4,410	5,565	39,030
Interest expenses paid	(2,828)	(3,227)	(25,029)
Income taxes paid (refund)	(8,679)	(3,466)	(76,804)
Net cash provided by (used in) operating activities	67,284	68,949	595,432
Cash flows from investing activities			
Payments into time deposits	(9,606)	(29,438)	(85,009)
Proceeds from withdrawal of time deposits	23,268	25,287	205,908
Purchase of property, plant and equipment	(38,872)	(38,317)	(343,999)
Proceeds from sales of property, plant and equipment	1,067	1,724	9,441
Purchase of investment securities	(1,646)	(3,163)	(14,565)
Proceeds from sales of investment securities	15,121	173	133,811
Purchase of investments in subsidiaries resulting in change in scope of consolidation	(14,910)	(2,132)	(131,945)
Net decrease (increase) in short-term loans receivable	(754)	(1,231)	(6,676)
Payments of long-term loans receivable	(1,045)	(4,077)	(9,252)
Collection of long-term loans receivable	609	322	5,386
Other, net	(3,145)	(2,903)	(27,830)
Net cash provided by (used in) investing activities	(29,914)	(53,754)	(264,729)
Cash flows from financing activities			
Net increase (decrease) in short-term debt	19,921	(7,242)	176,295
Proceeds from long-term loans payable	22,328	42,288	197,590
Repayments of long-term loans payable	(44,813)	(49,273)	(396,574)
Proceeds from share issuance of bonds	—	17,000	—
Redemption of bonds	(10,000)	(10,000)	(88,496)
Cash dividends paid	(4,277)	(4,267)	(37,848)
Cash dividends paid to non-controlling shareholders	(1,648)	(376)	(14,581)
Other, net	118	(1,350)	1,044
Net cash provided by (used in) financing activities	(18,370)	(13,220)	(162,570)
Effect of exchange rate changes on cash and cash equivalents	953	(523)	8,434
Net increase (decrease) in cash and cash equivalents	19,952	1,453	176,567
Cash and cash equivalents at beginning of the year	56,186	54,597	497,217
Increase in cash and cash equivalents resulting from newly consolidated subsidiaries	696	136	6,158
Cash and cash equivalents at end of the year	¥ 76,833	¥ 56,186	\$ 679,942

See notes to financial statements.

Corporate Data (As of Dec 31, 2017)

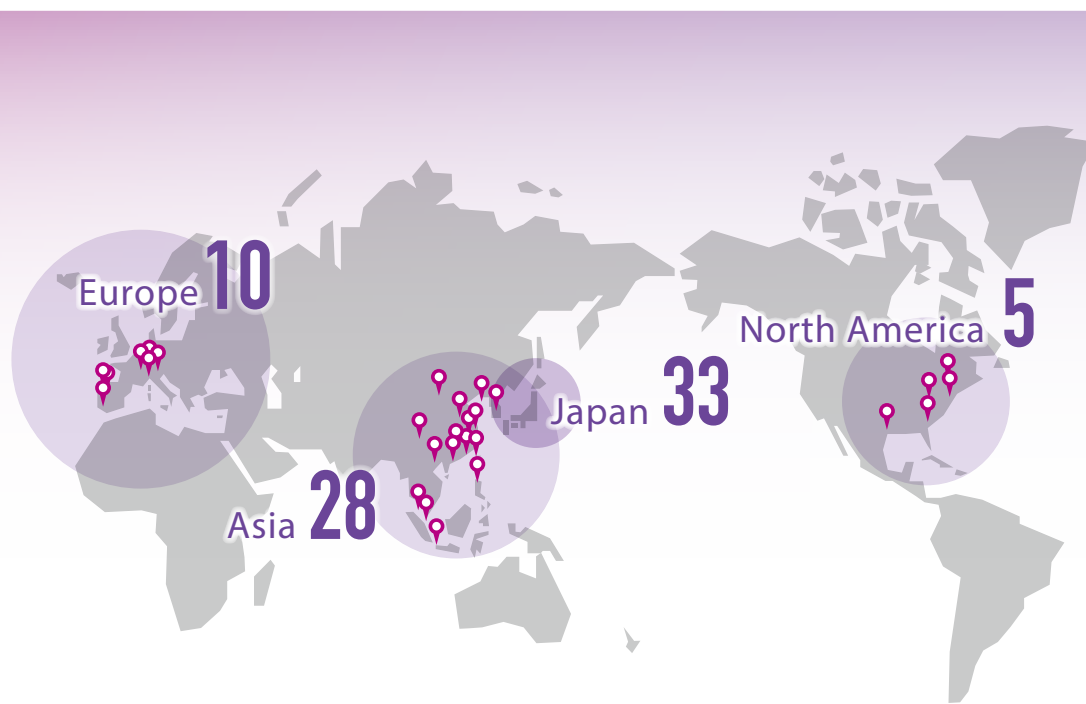
Company	Showa Denko K.K.	Head Office	13-9, Shiba Daimon 1-chome, Minato-ku, Tokyo 105-8518, Japan
Name/Founded	June 1, 1939		
Capital	140,564 million		Phone: +81-3-5470-3235
Employee Consolidated	10,864 Parent : 3,616		URL: http://www.sdk.co.jp/
Subsidiaries & Affiliates	Consolidated subsidiaries: 62 Equity method applied: 11		E-mail: sd_k_prir@showadenko.com

Commercial Subsidiaries Abroad	America
	Showa Denko America, Inc. 420 Lexington Avenue, Suite #2335A, New York, NY 10170, U.S.A. Phone : +1-212-370-0033 Fax : +1-212-370-4566

	Singapore
	Showa Denko Singapore (Pte.) Ltd. 2 Shenton Way #15-03/04, SGX Centre 1, Singapore 068804 Phone : +65-6223-1889 Fax : +65-6223-6007

	Germany
	Showa Denko Europe GmbH Konrad-Zuse-Platz 3, 81829 Munich, Germany Phone : +49-89-939-9620 Fax : +49-89-939-96250

	China
	Showa Denko (Shanghai) Co., Ltd. 18F, Wang-Wang Building No. 211, Shimen Yi Road, Jingan, Shanghai, 200041, China Phone : +86-21-6217-5000 Fax : +86-21-6217-9840



Stocks information

Authorized number of shares 330,000,000

Number of Shares Outstanding	149,711,292
Number of Shareholders	60,531

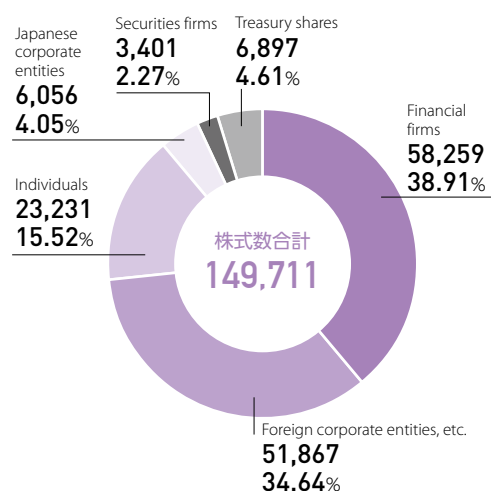
* SDK consolidated every ten shares of its common stock into one share on July 1, 2016.

► Shareholders (Top 10)

Shareholder	当社への出資状況	
	Number of Shares Held (in thousands)	Rate of Shareholding (%)
The Master Trust Bank of Japan, Ltd.(T)	9,166	6.42
Japan Trustee Services Bank, Ltd.(T)	7,701	5.39
Fukoku Mutual Life Insurance Company	5,517	3.86
MORGAN STANLEY & CO. LLC	3,651	2.56
The Dai-ichi Life Insurance Company,Limited	3,600	2.52
MSCO CUSTOMER SECURITIES	3,321	2.33
Japan Trustee Services Bank, Ltd.(T9)	3,028	2.12
Sompo Japan Nipponkoa Insurance Inc.	3,007	2.11
NORTHERN TRUST CO. (AVFC) SUB A/C NON TREATY	2,956	2.07
Japan Trustee Services Bank, Ltd.(T5)	2,659	1.86

(注)持株比率は発行済株式総数から自己株式(6,897千株)を控除して算出しております。

► Shareholders by Sector



Contact desk

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– We adopted eco-friendly paper and printing.



– SRI indexes adopting Showa Denko



As of January 2018



FTSE4Good



FTSE Blossom Japan



2018 Constituent
MSCI Japan ESG
Select Leaders Index



2018 Constituent
MSCI Japan Empowering
Women Index (WIN)