

Topics

Graphite Electrode Production through Renewable Energy Use

Our Omachi Plant, which produces graphite electrodes, has three hydroelectric power generation facilities (Aoki, Tokiwa, and Hirotsu) that utilize the region's shared water resources. Hydroelectric power generation is a reliable, low-carbon source of electricity. In April 2022, this plant also shifted to power sources, certified as not being generated using fossil fuel for electricity purchased, to supplement that procured through hydroelectric power generation. Following the example of the Omachi Plant, our mother factory, we are promoting similar renewable energy initiatives in Europe.

The Omachi Plant is located in Omachi City, Nagano Prefecture, which became the first municipality to be recognized by the Japanese government as evolving into a futuristic city based on the principles of the SDGs in July 2020. Accordingly, this city has unveiled a plan of becoming a sustainable city with plentiful water nurturing co-creative partnerships inspired by the SDGs. Showa Denko is supporting this plan by providing all of the water from the 36 km of waterways it manages for hydroelectric power generation purposes for use in agriculture or daily use by community members. In addition, we are using big data to examine ways to maximize the output of our hydroelectric power generation systems, as part of our efforts to promote the effective use of water together with the community.

Further efforts to reduce greenhouse gas emissions will be taken in the years ahead. These efforts will not be limited to the use of renewable energy and may involve conversion to more eco-friendly fuel sources. Through these initiatives, we will supply graphite electrodes produced using an eco-friendly process.



Hydroelectric power station of the Omachi Plant (Hirotsu)

Greenhouse Gas Abatement Systems

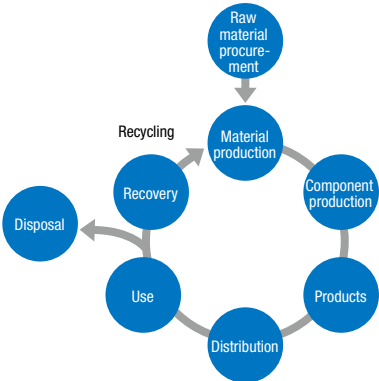
We are developing exhaust gas abatement systems that treat perfluorochemical (PFC) gases, which have a particularly high greenhouse effect coefficient, to contribute to reductions in emissions of greenhouse gases. To date, more than 1,200 of our systems have been delivered around the world. PFC gases are used in processes such as semiconductor etching, and the Company produces and sells high-purity PFC gases as a product. Semiconductors are crucial components found in various products used throughout society. As a chemical manufacturer, we seek to minimize the negative impacts of manufacturing processes on the global climate. We are therefore ramping up foundational development activities for catalysts and chemicals that are more effective at preventing emissions of harmful gases. On this front, we have concluded a joint development agreement with a South Korean abatement system manufacturer, to help us redevelop our product lineup in accordance with requirements of countries around the world. This company has succeeded in commercializing combustion-type and plasma-type abatement systems and boasts superior mechatronics and engineering capabilities. These strengths are anticipated to lead to technical synergies with Showa Denko, which itself has strengths in the field of chemicals, and thereby help us to combat global warming through improvements to existing equipment, cost reductions, and enhancements to systems for local production and consumption.



Life Cycle Assessment and Carbon Footprint Initiatives

Life cycle assessments are a means of quantitative evaluation of the environmental impacts of products and services throughout their entire life cycle, or within a specified portion of this life cycle. At Showa Denko, we base life cycle assessments on our accumulated experience and insight to use assessments as one facet of our establishment and construction of systems, in preparation for the upcoming integration. Specifically, we are developing frameworks to apply life cycle assessment methodologies to measure the total amounts of greenhouse gas emissions (carbon footprint) associated with individual products. For example, life cycle assessments have been commenced to quantify the greenhouse gas emission reduction benefits of the recycling technologies that utilize waste plastic at the Kawasaki Plant. We have also been expanding the scope of these assessments beyond products to apply these methodologies from the R&D phase, and plans have been formulated to begin performing life cycle assessments of R&D activities in 2023. Contracts have been concluded with external life cycle assessment experts to provide guidance to support our implementation of these activities, allowing us to receive advice on our assessment methodologies. Moreover, we participate in the life cycle assessment research groups of external organizations, to coordinate with external experts and other companies through research on concrete case studies.

Product Life Cycle



Environment

Policies and Management

Showa Denko has defined the basic policy for its responsible care activities (🔗 P.66) as being considerate of health, safety, and the environment throughout all stages of product life cycles, and we are working to reduce environmental impacts across product life cycles in accordance with this policy. As a chemical company, we of course seek to minimize the missions of hazardous substances, waste, and pollutants and to fulfill our responsibility as an emitter of such substances. We are also going a step further to appropriately assess the impact of our business on the environment and to implement measures for preserving the environment based on the findings of such assessments, while contributing to the pursuit of carbon neutrality and to the resolution of social issues.

The CEO is the highest authority for environmental preservation

activities, and it is the CEO who leads us in shaping the responsible care policies that form the basis of our environmental preservation activities and in communicating these policies inside and outside the Group. Business divisions and sites are responsible for advancing environmental preservation activities based on these policies, while our headquarters offers support for these activities. Moreover, information on the status of environmental management is shared at regular meetings of the Responsible Care Promotion Council and the Management Committee. These meetings are also used as an opportunity to set Groupwide environmental preservation activity targets, which are then deployed to business sites. Business sites advance environmental preservation and management activities based on the details of responsible care plans formulated by the site manager.

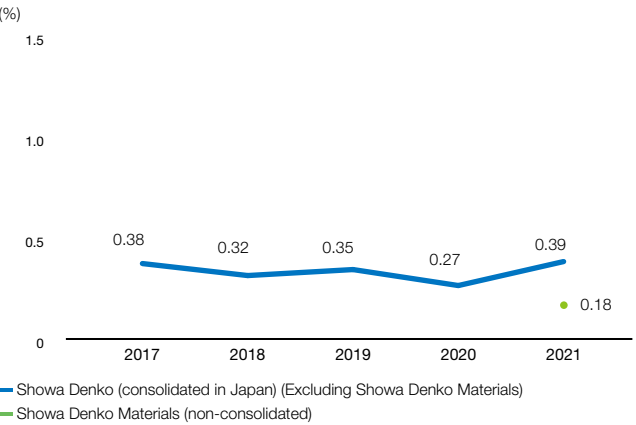
Strategies

One of the material sustainability issues defined in the Company's long-term vision is "gain social credibility through responsible business management." Our efforts to address this issue include a range of environmental initiatives. Environmental management pertaining to environmental risks—such as global warming, waste, and water, air, soil, noise, and vibration pollution—is being improved based on our responsible care policies and through initiatives to develop supply chain-spanning monitoring systems and effective environmental risk management systems. With especially strong environmental management systems overseas, the newly integrated company is promoting environmental preservation on a global scale.

The following KPIs have been defined in relation to material sustainability issues along with targets for 2025, which we are steadily working toward.

Greenhouse gas emissions (Scope 1 + Scope 2) (🔗 P.25)

Ratio of Industrial Waste Sent to Landfills



Priority measures	Targets for 2025	Results in 2021
1) Greenhouse gas emissions (carbon neutrality declaration) 2) Industrial waste sent to landfills 3) Environmental accidents	1) 30% reduction in greenhouse gas emissions (Scope 1 + Scope 2) from fiscal 2013 (consolidated) * Target for 2030 2) 0.5% or less in Japan, 5.0% or less outside Japan 3) Zero environmental accidents (consolidated)	1) 10% reduction for Showa Denko and 0.5% reduction for Showa Denko Materials from fiscal 2013 2) 472 tons out of 135,000 tons of industrial waste sent to landfills, for a ratio of 0.35% (Showa Denko [consolidated in Japan] + Showa Denko Materials [non-consolidated]) 3) Zero accidents (Showa Denko [consolidated in Japan] + Showa Denko Materials [non-consolidated]) (Global information collection frameworks to be developed)

Environmental Measures in Kitakata City

Surveys of soil and underground water at our production base in Kitakata City, Fukushima Prefecture, revealed that the content of fluorine and other substances in soil and underground water exceeded the regulatory standards on the premises as a result of past operations. This fact was reported to the Fukushima Prefectural Government in December 2020, resulting in the site being designated an area which requires action in accordance with the Soil Contamination Countermeasures Act. Environmental response measures based on this act have been implemented since 2021.

Minamata Disease in Niigata Prefecture

With regard to Niigata Minamata disease, which was officially recognized in 1965, we maintain an awareness of the significant scale at which substances emitted by Showa Denko have caused damage to the victims and residents of neighboring areas through contamination of the Agano River, and we are committed to collaborating with the Japanese government as well as local governments in order to cope with this issue with sincerity, and to provide solutions in accordance with the Pollution-related Health Damage Compensation Law and other relevant laws and regulations.

Occupational Health and Safety

Policies and Management

At the Showa Denko Group, occupational safety activities are positioned as part of our responsible care activities and are thus advanced under our responsible care system. The basic philosophy of our occupational safety activities is to place safety as our top priority. We are therefore promoting the development of a workplace environment in which all employees can work safely, in good health, and with peace of mind.

Occupational safety activities are overseen by the president, and safety meetings are held once every two weeks, in principle, with an emphasis on delivering bad news fast. These meetings serve as an opportunity to communicate information regarding safety within the Group to management, and for management to provide guidance to be disseminated throughout the Group. In addition, forums for discussions regarding occupational health and safety between labor and management are arranged at the business site and at the Companywide level. We thereby facilitate discussions and workplace patrols related to occupational health and safety by members of management and labor unions, creating a unified front between labor and management to promote occupational safety.

Strategies

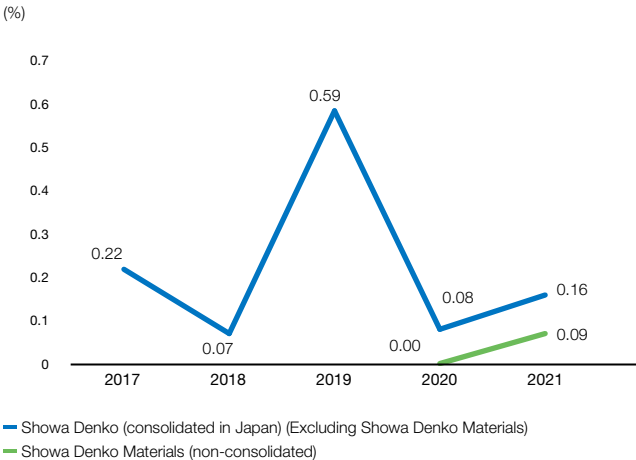
We seek to develop a globally applicable system to prevent occupational and equipment-related accidents based on a risk management approach. The global regulations that will form the basis for this system are scheduled to be formulated within 2022, with the goal of putting the actual system into effect in 2025. Specific provisions to mitigate occupational accident risks will include enhanced occupational health and safety and equipment maintenance risk assessments, ongoing improvements to management systems, and sharing of accident information to prevent the occurrence of similar accidents. The positive elements of the occupational safety activities of both Showa Denko and Showa Denko Materials will be incorporated into the standards for the newly integrated company, and these standards will then be deployed on a global scale. Furthermore, KPIs will be defined for these activities to monitor their progress and drive improvements.

At the same time, we will integrate the training programs of both companies to facilitate the cultivation of human resources with high levels of safety awareness to support these systems and activities. We thereby aim to foster people, workplaces, and cultures with a strong emphasis on safety. In addition, a safety awareness survey will be conducted as necessary to gauge the level of entrenchment of our desired culture of safety, to highlight any issues that might exist, and to facilitate ongoing system improvements.

We have also set the targets of zero occupational and equipment-related accidents, including accidents that do not result in lost work time. Meanwhile, initiatives are being implemented based on the following KPIs related to material sustainability issues in our long-term vision.

Priority measures	Targets for 2025	Results in 2021
1) Fostering of a culture emphasizing safety 2) Occupational accidents 3) Lost time incident rate 4) Equipment-related accidents	1) Establishment of a culture emphasizing safety to eliminate occupational accidents (measured through global employee awareness surveys and improvement seen in results) 2) Zero serious occupational accidents (consolidated) 3) 0.1 or less (consolidated, equivalent to zero accidents resulting in lost time over a 10-year period at a site with 500 employees) 4) Zero serious equipment-related accidents (consolidated)	1) Identification of potential risks and advancement of safety measures 2) 0 (Showa Denko [consolidated in Japan] + Showa Denko Materials [non-consolidated]) 3) 0.13 (Showa Denko [consolidated in Japan] + Showa Denko Materials [non-consolidated]) 4) 0 (Showa Denko [consolidated in Japan] + Showa Denko Materials [non-consolidated])

Lost-Time Incident Rate (LTIR)



Responsible Care Initiatives

Responsible care initiatives entail voluntary action to protect safety, the environment, and health across the entire life cycle of chemical products, which ranges from development to manufacturing, distribution, use, final consumption, and disposal. We are always pursuing higher levels of quality in our chemical products, to ensure that they can be used safely and with peace of mind. At the same time, we seek to earn greater levels of trust from stakeholders through active engagement.

Based on our belief that safety must be our top priority, we are working to accomplish targets related to occupational health and safety, climate change and other environmental activities, and quality and chemical management.

Quality Assurance

Policies and Management

Guided by our policy of providing world-class quality that contributes to the sustainable development of society, we are reinforcing global quality assurance governance and pursuing ongoing improvements through concerted Company efforts as we integrate regulations and measures to build the quality assurance frameworks of the newly integrated company. We are also targeting higher levels of quality awareness through the consolidation and expansion of quality training programs, to stimulate the growth of organizations and the people who support them. By building frameworks and heightening awareness in these manners, we will foster a culture that emphasizes quality.

The chief quality officer (CQO) leads an oversight organization that houses functions related to formulating quality-related strategies and systems, managing these systems, conducting monitoring, and promoting globalization and IT system development. Improvements in these areas are pursued through the implementation of a PDCA (plan–do–check–act) cycle via coordination with business sites.

Strategies

The following priority quality assurance measures are being implemented on a global scale. In addition, our long-term vision defines KPIs for material sustainability issues. Initiatives are underway based on these KPIs.

Priority Measures

1. Maximization of value provided to customers and society
We will track the results of evaluations of the Company by customers.

2. Reinforcement of global quality assurance governance
Two-way communication will be practiced as we strive to establish governance systems and quality information sharing frameworks that match the needs of specific businesses and regions, to create a global quality management system and ensure that this system is reflected effectively in the activities of bases.

3. Pursuit of ongoing improvements through concerted Company efforts
(1) Steps are being taken to develop frameworks for assessing and mitigating product quality risks across product life cycles, to prevent accidents arising from quality safety issues.
(2) Information on the lessons to be learned from complaints is managed in an integrated manner, to develop frameworks to prevent future complaints.
(3) Digital transformation methodologies related to quality management, such as automatic uploading of inspection logs, are being used to facilitate improvements in this area.

4. Stimulation of the growth of organizations and the people who support them
Quality compliance training programs employing case studies of actual violations are conducted on an ongoing basis, to foster a culture of diligent manufacturing throughout the organization.

Priority measures	Targets for 2025	Results in 2021
1) Product-related accidents 2) Quality compliance violations 3) Product stewardship	1) Zero product-related accidents (consolidated) 2) Zero violations (consolidated) 3) 100% implementation rate for chemical management risk assessments* (consolidated)	1) 0 (consolidated) 2) 0 (consolidated) 3) 55% (Showa Denko (non-consolidated))

* Assessed through GPS safety summaries (GSSs) of priority risk assessment substances (62 substances stipulated by the Company in 2019)

Topics

Showa Denko was presented with first prize in the fiscal 2021Japan Initiative of Product Stewardship (JIPS) award program organized by the Japan Chemical Industry Association (JCIA). This program recognizes member companies of the association that have conducted superior initiatives as detailed by their disclosed safety activity summaries, which is one of the voluntary activities encouraged for chemical management. Our receipt of this honor is thought to be a reflection of our sequential risk assessments of high-priority substances from among the chemicals we manufacture and sell, as well as our proactive disclosure of the results of these assessments. The safety activity summary we prepared in 2021 contained the results of 30 risk assessments, and this summary was made available through the JCIA BIGDr chemical risk assessment support portal.

In 2022 and beyond, we will continue these activities as a newly integrated company, implementing ongoing improvements to the content of our safety activity disclosure to help stakeholders better comprehend our efforts.



Sustainable Procurement

Policies and Management

The Showa Denko Group aspires to build long-term relations of trust with suppliers and contribute to the realization of a sustainable society. To this end, we adhere to high ethical standards in our procurement activities and develop fair and impartial procurement frameworks to promote responsible procurement activities. We also strive to develop sustainable businesses across the supply chain, ranging from raw material procurement to manufacturing, sales, and distribution.

As we work toward the full integration of Showa Denko and Showa

Denko Materials as a corporate entity, we are moving ahead with the integration of our procurement policies, supplier screening standards, procurement procedures, and procurement regulations through the Purchasing & Distribution Subcommittee. This organization is staffed by representatives of the procurement divisions of Showa Denko and Showa Denko Materials under the guidance of the chief operations, manufacturing, and engineering officer (CMEO). In addition, important meetings and training programs have been held jointly since 2021.

Strategies

In its procurement activities, the Group is committed to exercising social responsibility with regard to the environment, human rights, and compliance from a global perspective. To this end, we have established procurement guidelines detailing the initiatives that we want suppliers to join. Adherence to these guidelines in collaborative activities is anticipated to lead to improved corporate value for both parties. Moreover, the CSR procurement guidelines issued by Showa Denko and Showa Denko Materials were integrated and revised in 2022 to enhance our

competitiveness on the global stage as a newly integrated company, to form the Sustainability Procurement Guidelines. We aim to spread awareness among suppliers of the new guidelines in the years ahead.

 In addition, our long-term vision defines the following priority measures for material sustainability issues, and we are working to advance these measures.

Priority measures	Targets for 2025	Results in 2021
Improvement of communication quality through supplier self-assessment questionnaires	Improved response rates Higher rate of suppliers exceeding the satisfactory threshold	Began formulating the Sustainability Procurement Guidelines for the newly integrated company (established in 2022, with awareness raising activities underway)

Initiatives in 2021

Showa Denko previously requested that all of its suppliers comply with the Showa Denko Group's CSR Procurement Guidelines. To raise suppliers' awareness with regard to our sustainable procurement activities, we asked new suppliers to fill out CSR self-assessment questionnaires when starting business with us, and we requested major existing suppliers to do so once every three years. Additionally, each year we visit around 40 suppliers to conduct on-site CSR inspections, during which we speak with them about their environmental, human rights, compliance, and other initiatives.

and in principle we conduct supplier risk assessments for all items and services that we purchase.

Concurrently, Showa Denko Materials distributed its Supply Chain CSR Procurement Guidelines to new suppliers when starting business with them and asked them to submit a report on the completion of checking as part of efforts to raise awareness among suppliers. In the future, efforts will be advanced as a newly integrated company based on the KPIs defined in our long-term vision.

In addition, we issued a declaration to voluntarily take actions based on our endorsement of the principles of the white logistics movement aimed at improving working conditions in the logistics industry advocated by the Ministry of Land, Infrastructure, Transport and Tourism; the Ministry of Economy, Trade and Industry; and the Ministry of Agriculture, Forestry and Fisheries. Initiatives are underway in accordance with this declaration.

Results of Supplier CSR Self-Assessment in 2021

Number of respondents: **327** companies Average score: **65.4**

Score	Number of companies (%)	Improvement efforts
50 or more	239 companies (73%)	Were requested to work on matters that needed improvement and pursue higher-scoring initiatives
30 to 50	78 companies (24%)	Were requested to work on matters that needed improvement, and were offered Showa Denko's proposal on improvement measures Note: Visits made as needed, to exchange opinions on efforts on both sides and check improvements with the next self-assessment.
Below 30	10 companies (3%)	Were requested to work on matters that needed improvement, and were offered Showa Denko's proposal on improvement measures Note: Visits made as needed, to discuss early improvement and check improvements with the next self-assessment.

Compliance

Policies and Management

The Company believes a compliance philosophy that emphasizes adherence to both laws and soft law standards is imperative for the continuity of its business. Accordingly, we are implementing systems and initiatives to entrench, throughout the organization, an ethical standard based on honesty, impartiality, and integrity alongside our commitment to compliance with the laws, regulations, and social norms of every country and region that we serve.

The upcoming milestone of the corporate integration of Showa Denko and Showa Denko Materials, scheduled for January 2023, is being positioned as an opportunity to instill awareness of corporate ethics and compliance among all Group employees. We will also be examining methods of installing and operating frameworks to appropriately monitor the state of compliance.

Strategies

The newly integrated company will focus on introducing and enacting global compliance standards over the medium to long term, with the goal of gaining social credibility through responsible business management. In addition, a new code of conduct will be prepared and its understanding and awareness promoted. We will also seek to increase recognition of our Corporate Ethics Hotline, so that we can protect our reputation and improve the ability of the organization to combat internal misconduct.

to the new code of conduct among all Group companies.

Furthermore, code of conduct booklets are scheduled for production. These booklets will be used as a tool to facilitate a deeper understanding of the code and help employees reflect this code in their daily business activities and everyday life. Meanwhile, our annual Corporate Ethics Month will continue to serve as a time to promote understanding of the code through the Group.

Group Code of Conduct

A project team comprised of employees from both Showa Denko and Showa Denko Materials is currently in the process of formulating a code of conduct that will set forth the minimum required standards of actions and the rules we will expect all members of the newly integrated company to observe. This code of conduct is scheduled to be announced during our annual Corporate Ethics Month in October 2022. We plan to prepare Japanese-, English-, and Chinese-language versions of this code for the announcement, which will then be used to promote understanding of and adherence

Corporate Ethics Hotline Consultation and Whistleblowing System

Showa Denko and Showa Denko Materials have set up compliance hotlines that are available to all stakeholders who wish to seek consultation or report any issues regarding compliance. The two companies, moreover, make proper and prompt responses to such reports, with due consideration to confidentiality and the prevention of disadvantageous treatment of hotline users. As for serious cases, all matters, from reporting to investigation to corrective and preventive measures, are reported to the Management Committee and the Board of Directors.

Priority measures	Targets for 2025	Results in 2021
1) Entrenchment of the Group Code of Conduct 2) Penetration of Group global compliance standards	1) Increase workplace communication opportunities and number of participants 2) Reduction in number of serious legal breaches and increase in number of reports through the whistleblowing system	1) Commencement of the formulation of the new Group Code of Conduct (scheduled for completion in 2022) 2) Commencement of the formulation of global compliance standards (introduction completed in 2022)

Initiatives Based on Our Human Rights Policy

The Showa Denko Group Human Rights Policy was established in 2021. All employees are expected to conform their actions to this policy, and we request that suppliers and all other business partners adopt the spirit of the policy. We also continue to build upon human rights due diligence activities in accordance with this policy.

In 2021, focus was placed on risk assessments of Showa Denko Group employees in Japan and on process assessments of sustainable procurement activities. Any human rights issues discovered through these assessments will be addressed through concrete improvement activities, including training to raise awareness, revisions to regulations, and reforms to procurement processes.

In 2022, we expanded the scope of human rights due diligence activities to include overseas Group employees, workers with non-direct employment schemes in Japan and overseas, and the supply chain in its entirety. This move was made based on the rising geopolitical risks and on our need to act as a newly integrated company. Through this expanded scope of activities, we have begun identifying high-risk areas.

Priority measures	Targets for 2025	Results in 2021
Human rights	Establishment of human rights due diligence processes and implementation frameworks	Commencement of human rights policy establishment, issue identification in Japan, and response measure formulation

