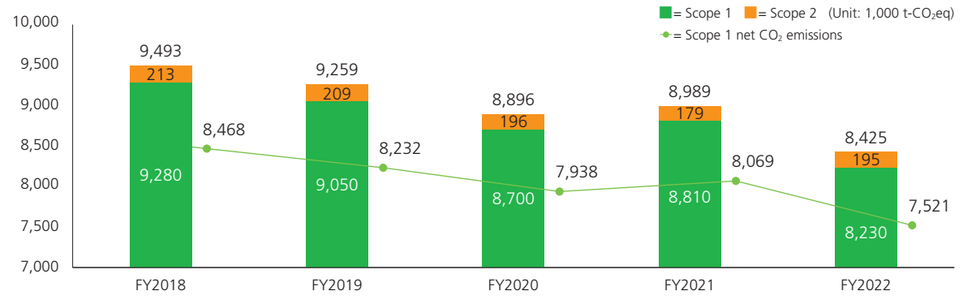
E Environment

Response to Climate Change

Greenhouse Gas Emission Volume of the Sumitomo Osaka Cement Group



	FY2018	FY2019	FY2020	FY2021	FY2022
Energy-related CO_2	3,856	3,742	3,654	3,706	3,380
[Breakdown] Scope1	3,643	3,533	3,458	3,527	3,185
Scope2	213	209	196	179	195
Non-Energy-related CO_2 (Derived from processes)	4,590	4,470	4,260	4,320	4,130
Non-Energy-related CO_2 (Derived from waste)	812	818	762	741	709
Other GHG	235	229	220	222	206
Volume of GHG emissions (CO_2 equivalent)	9,493	9,259	8,896	8,989	8,425
Scope1 (net CO_2 emissions)	8,468	8,232	7,938	8,069	7,521

*Scope 1: Direct emissions of greenhouse gases via business operators (burning of fuel, manufacturing process)
*Scope 2: Indirect emissions of greenhouse gases due to the use of electricity, heat and steam supplied by other companies
*Scope 1 netCO_2 emissions: CO_2 derived from recyclable materials such as biomass and waste is excluded from energy-related CO_2, based on the WBCSD (World Business Council for Sustainable Development) concept of net CO_2 emissions.
<Scope of data collection> The Company and 48 major affiliates

Energy-related CO_2
- CO_2 from electrical energy: CO_2 from electric consumption necessary for cement clinker burning
- CO_2 from energy in the burning process: CO_2 from fossil energy for cement clinker burning
- CO_2 from processes: CO_2 released from chemical conversion of calcium carbonate ($CaCO_3$) in limestone, the primary ingredient of cement, to form calcium oxide (CaO), the essential compound of cement

CO_2 Emissions in the Value Chain: Scope 3 (Fiscal 2022)

Category		CO_2 emissions (1,000 t-CO_2)	Calculation method*
1	Purchased goods and services	47.3	Calculated by multiplying the amount of natural materials for cement manufacturing purchased from non-Group companies by the CO_2 basic unit
2	Capital goods	66.5	Calculated by multiplying the recorded amount of new noncurrent assets by the CO_2 basic unit
3	Fuel and energy related activities not included in Scope 1 or 2	369.2	Calculated by multiplying the amount of thermal energy purchased for cement manufacturing and the amount of electricity purchases by the CO_2 basic unit
4,9	Transportation and delivery (upstream, downstream)	154.3	Periodically reported figure based on the Act on Rationalizing Energy Use (Measures pertaining to consignors and transportation operators)
5	Waste generated in operations	0.3	Calculated by multiplying the amount of waste outsourcing fees, etc. by the CO_2 basic unit
6	Business travel	2.2	Calculated by multiplying the total travel expenses for business trips by the CO_2 basic unit
7	Employee commuting	0.9	Calculated by multiplying the total travel expenses for commuting by the CO_2 basic unit
10	Processing of sold products	64.1	Calculated by multiplying the volume of cement sold by the CO_2 basic unit
12	Waste from sold products	524.2	Calculated by multiplying the volume of cement sold converted into concrete by the CO_2 basic unit

<Scope of data collection> The Company
*Source of basic unit
"Embodied Energy and Emission Intensity Data for Japan Using Input-Output Tables (3EID)" (National Institute for Environmental Studies, Japan)
"Inventory Database IDEA" (National Institute of Advanced Industrial Science and Technology)
"Database of Emissions Unit Values for Accounting of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.2)" (Ministry of the Environment)
"Explanations by Industry (Cement Production) for the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (Ver. 1.0)" (Japan Cement Association)

Progress of the 2050 "Carbon Neutral" vision "SOCN2050"

2050 "Carbon Neutral" Vision "SOCN2050"

The CO_2 generated when producing cement consists of CO_2 originating from energy necessary for cement clinker burning and process-derived CO_2 emitted from limestone, which is the primary ingredient of cement. As a company that emits a large volume of greenhouse gases, in December 2020 we announced the "Carbon Neutral" Vision "SOCN2050" in which we set forth our initiatives to take on challenges for the Group to become a carbon-neutral organization by 2050 through all possible measures. Based on this roadmap, we are advancing the following initiatives.

SOCN2050
Sumitomo Osaka Cement Carbon Neutral 2050

Initiatives toward Achieving 2030 Reduction Target

FY2030 reduction targets

30% reduction in energy-related CO_2 emissions from FY2005 levels
on a carbon intensity basis (45% reduction in emissions)

(Unit: kg-CO_2/t)

	Results		Targets
Energy-derived CO_2 emission intensity	FY2005 **316**	FY2022 **274**	FY2030 **220**

❶ Maintain top-class fossil energy substitution rate by further expanding use of recyclable materials

Targets: Achieve no less than 50% average fossil energy substitution rate Company-wide
(Achieve more than 80% fossil energy substitution rate at the Group's five factories and four of its eight kilns)

❷ Reduce electric energy use through heat efficiency and the minimization of electricity consumption (Upgrade to cutting-edge raw material crushing process)

❸ Reduce fossil energy use from in-house power generation (greater volume of wood chips and other biomass fuels)

GX League Participation and the Disclosure of New Targets

We endorsed the "GX League Basic Concept" announced by the Ministry of Economy, Trade and Industry as well as steady initiatives for the Group's "SOCN2050" initiative, and are now participating in the "GX League*," which will be fully operational from fiscal 2023.

* Established as a forum for companies actively engaged in green transformation (GX) to collaborate with government, universities, public research institutions, and financial institutions to discuss the transformation of the entire economic and social system and to put the creation of new markets into practice.

GX League

GHG Emission Reduction Targets Announced in Conjunction with GX League Participation

2030 GHG direct emission reduction target
(Scope 1 (net CO_2 emissions))
16% reduction (compared to FY2013)

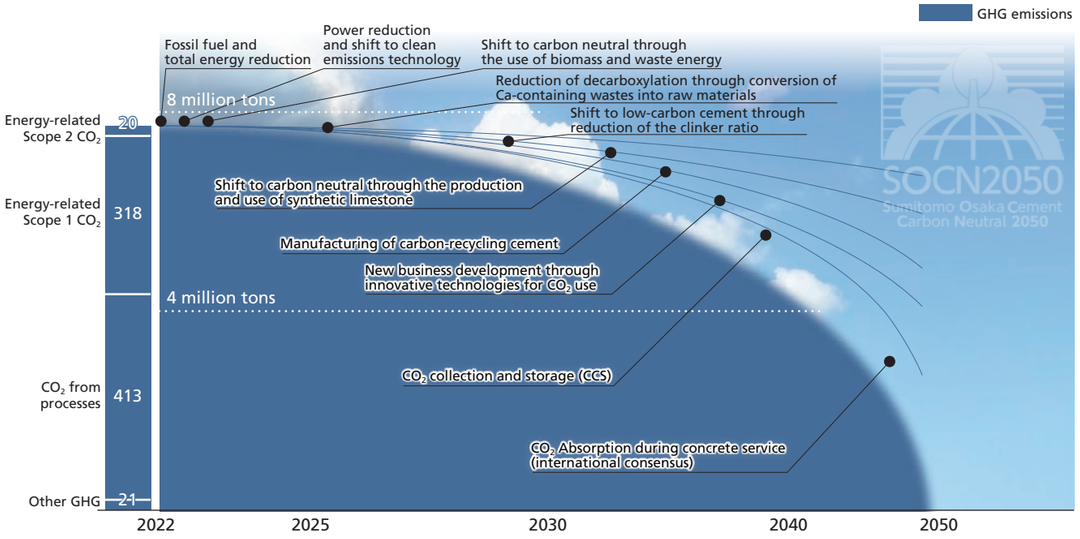
2030 GHG indirect emission reduction target
(Scope 2)
16% reduction (compared to FY2013)

<Scope of data collection> Total of Scope 1 (net CO_2 emissions) and Scope 2 (the Company + Hachinohe Cement Co., Ltd. + Wakayama Slag Cement Co., Ltd.)
[Reference] Japan Cement Association FY2030 Total CO_2 Emissions Reduction Target: 15% reduction (compared to FY2013)
Source: "Cement Industry Carbon Neutral Action Plan Phase II Targets" (Japan Cement Association) (published September 2022)

Roadmap to 2050 carbon neutral

The Group is committed not only to reducing energy-derived CO_2, but also to technological innovation through investment in research and development in order to achieve carbon neutrality by 2050. The Group will also reduce CO_2 including process-derived CO_2 from limestone, the primary ingredient of cement, through the following measures.

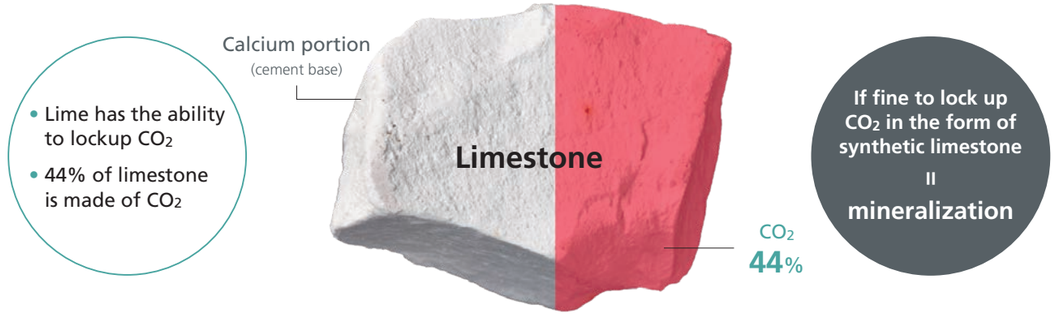
Conceptual Image of Reducing GHG Emissions toward Achieving Carbon Neutrality

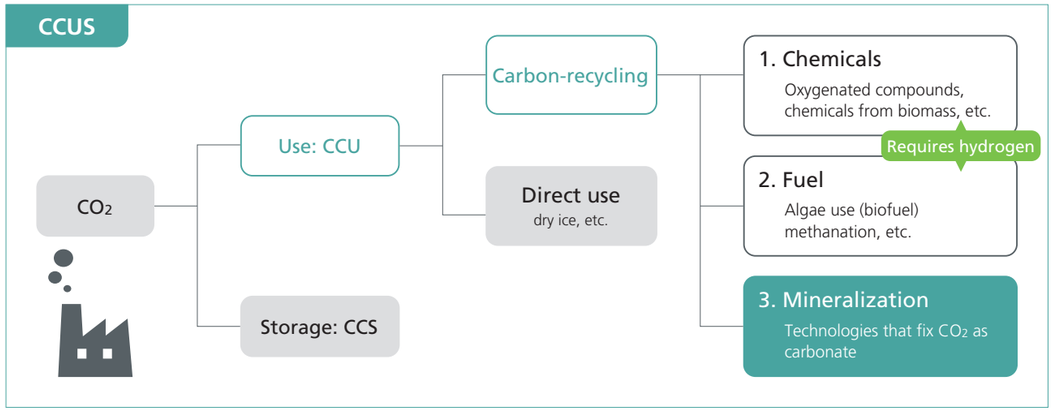


An example of an innovative technology to achieve 2050 carbon neutrality

"Dual recycling" of calcium and CO_2

Various technological innovations are required to achieve carbon neutrality in the cement industry, which is one industry with a high volume of CO_2 emissions. In addition to CCS, we believe it is essential to put into practical application technology referred to as CCU, technology for the reuse and fixing of CO_2 as a resource. Among the various CU technologies, "mineral fixation" of CO_2 is promising as a technology that can be implemented in society relatively quickly. As a proprietary technology, we have started development on a technology to recycle CO_2 as synthetic limestone by directly reacting calcium extracted from various calcium-containing wastes with CO_2, and we are working towards implementation in cement plants. (Please see page 37 for the details)



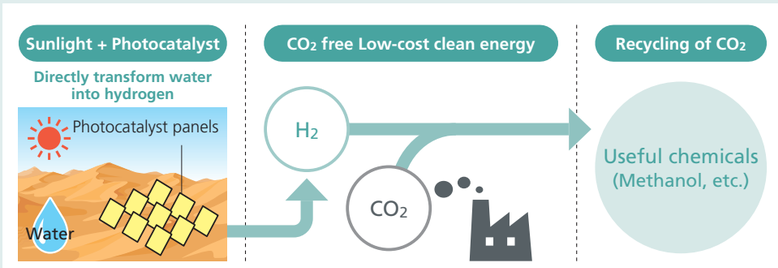


Topics

Development of artificial photosynthesis photocatalysts

Compared to "photosynthesis," where plants synthesizes organic matter from water and CO_2 using light energy, "artificial photosynthesis" is where hydrogen and oxygen are created by disassembling water with the power of sunlight and our proprietary photocatalyst technology, and useful substances such as methane are synthesized through CO_2 using that hydrogen.

At the Company's New Technology Research Laboratory, research is being carried out on photocatalyst for artificial photosynthesis in the manufacture of hydrogen to achieve both economic rationalism and sustainability.



Development of photocatalysts for artificial photosynthesis able to manufacture hydrogen at low cost

Hydrogen generation with the photocatalysts being developed by the Company + water

Initiatives for 2050 (cement manufacturing)

Development of CO_2 recovery-type cement manufacturing processes

"Establishment of carbonation technologies using various calcium sources"

(Adopted by NEDO Green Innovation Fund Project, research and development in progress)

Purpose and Outline of the Project

Cement (main component: CaO) is industrially produced through a decarboxylation reaction (CO_2 separation) of natural limestone ($CaCO_3$). However, it is possible to produce Carbon-Recycling Cement (CRC)*1 with synthetic limestone ($CaCO_3$) by extracting CaO from various types of calcium-containing waste, such as waste concrete or ordinary incinerator ash, and recombining it with separated CO_2 in the cement production process. We are aiming for carbon-neutral in the cement industry by using this carbonation process.

1

Development of Carbonation Technologies

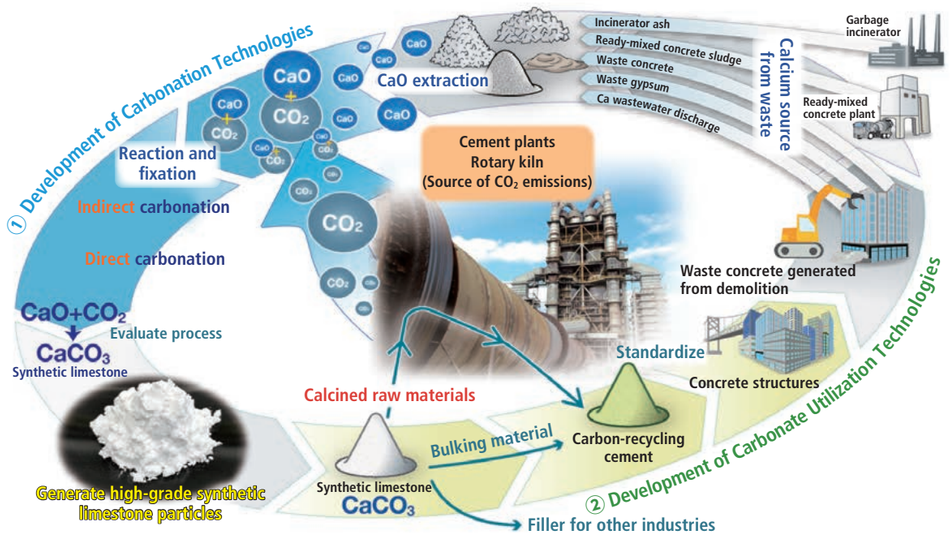
We will develop and verify multiple carbonation technologies using the two methods of direct or indirect carbonation*2 for use on various types of calcium-containing waste, and aim to establish technologies for optimal CaO extraction and CO_2 fixation.

2

Development of Carbonate Utilization Technologies

We will verify whether the carbonate generated can be used as a calcined raw material for carbon-recycling cement or as a bulking material for cement, and develop materials that meet the performance requirements (strength, etc.) of concrete, creating guidelines for their use in design and construction, with the aim of societal implementation.

Business Image



Implementation System	❶ **Development of Carbonation Technologies** Sumitomo Osaka Cement Co., Ltd., Yamaguchi University, Kyoto Institute of Technology, Tokyo Institute of Technology (IDC method), Mitsubishi UBE Cement Corporation, The University of Tokyo (DC method) ❷ **Development of Carbonate Utilization Technologies** Sumitomo Osaka Cement Co., Ltd., TAISEI CORPORATION
Project Scale, etc.	Scale of project (❶+❷): Approx. ¥6.9 billion Scale of support (❶+❷): Approx. ¥5.1 billion [Subsidy rate: (Commissioning) 9/10 → (subsidy) 1/2] (Scheduled to shift to the subsidy project period after the five-year commissioning period)
Project Period	❶, ❷ FY2021 - FY2030 (ten years)

*1: About Carbon-Recycling Cement (CRC)
Cement produced from CO_2 recycling of carbonate = synthetic limestone, an alternative to natural limestone, which is the current raw material for cement. Synthetic limestone can be used not only as a raw material for cement (calcined raw material), but also as a bulking material or filler for other industries.

*2: Indirect (IDC)/Direct (DC) method CaO extraction/CO_2 fixation
IDC method: carbonate generation using bipolar membrane electrodialysis*3 for a highly efficient extraction of calcium, thereby recovering/generating high quality carbonate.
DC method: a less expensive method of carbonate generation that directly absorbs a large amount of CO_2 through pretreatment of waste, etc.

*3: About Bipolar Membrane Electrodialysis (BMED)
A technology to separate ions by straining through ion-exchange membranes. It can simultaneously generate "acid = hydrochloric acid" to extract CaO from waste and "alkali = sodium hydroxide or potassium hydroxide" to absorb CO_2 in exhaust gases.


Verification facilities for manufacture of synthetic limestone (Taisho-ku, Osaka)

Topics

Pca products utilizing Carbon-Recycling Cement (CRC) are a trial application in the direct control project of the Ministry of Land, Infrastructure, Transport and Tourism

Concrete products (U-shaped side ditch) manufactured through CO_2 mineral fixation technologies have been installed in a trial application in the construction by Taisei Corporation of the "Naruse Dam Raw Stone Mountain Extraction Work (Phase 1)," a direct control project of the Ministry of Land, Infrastructure, Transport and Tourism in 2022.

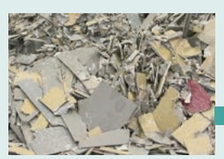
This current technology for the mineral fixation of CO_2 used the Ca contained in waste gypsum board to fix CO_2, so it is a proprietary method referred to as "conversion." It is as world first technology as recycling of CO_2, and since it simultaneously uses the Ca from waste gypsum board, it is technology that can be called the twin recycling of CO_2 and Ca. We established the verification facilities for the manufacture of synthetic limestone in Taisho-ku, Osaka in May 2023 and have commenced operations.

In future, we will advance the application to the manufacture of synthetic limestone using calcium sources in other waste and for trial construction of CRC.



U-shaped groove installed at the site of the direct control project

Manufacturing process for synthetic limestone and U-shaped grooves


Waste gypsum board

CO_2 and synthetic processing


Manufacturing synthetic limestone


Manufacture of U-shaped grooves by using concrete

Environmental Management

Environmental Philosophy

Striving for harmony between the natural environment and its business activities, the Sumitomo Osaka Cement Group is contributing to the creation of a prosperous society and environmental preservation through the pursuit of production, power generation and logistics defined by minimal environmental impact.

Action Policy

- Leverage the environmental management system and Eco Action 21 to enhance risk reduction and environmental preservation levels, along with steps toward continuous improvement in environmental performance.
- In addition to legal and regulatory conformance, promote further voluntarily efforts to improve environmental level.
- Systematically promote energy conservation from the standpoint of helping prevent global warming.
- Strive to realize a zero-emissions society, collaborating on industrial recycling while acting to reduce the amount of such waste produced.

Environmental Preservation Framework

Promotion Framework

To promote environmental preservation, the Group has adopted an environmental preservation promotion framework headed by the president, with the environmental director responsible for supervising the Environment Division. As sub-units, the Company has set up Environmental Preservation Committees at each business site to implement various measures targeting pollution prevention and environmental preservation.

Status of Environmental Management System Certification

The Group has acquired ISO14001 certification for all cement plants, the Optoelectronics Business Division, the Advanced Materials Division, Hachinohe Cement Co., Ltd. and Sumitec Co., Ltd. Wakayama Slag Cement Co., Ltd., meanwhile, has acquired Eco Action 21 certification.

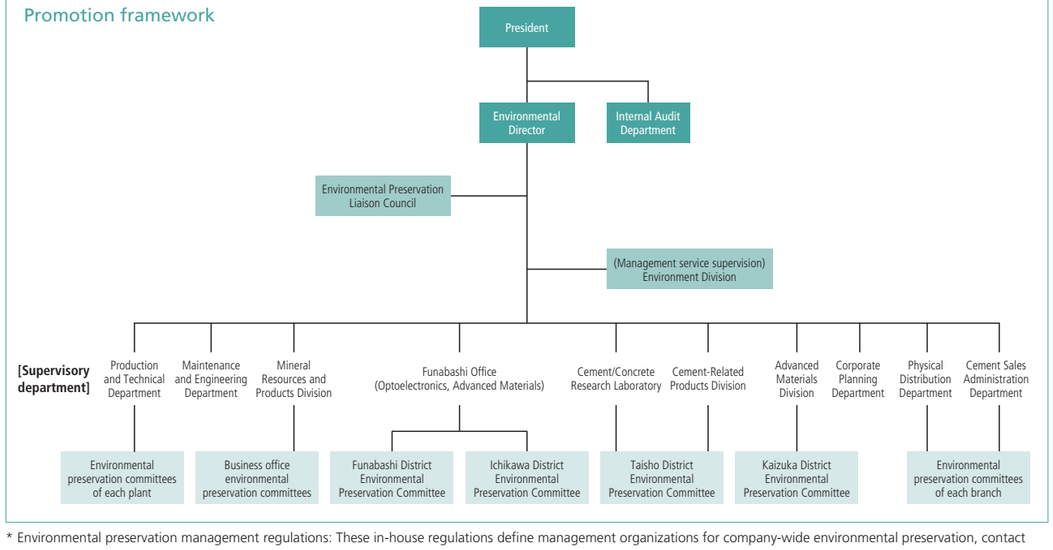
Environmental Audits

The Internal Audit Department conducts environmental audits regarding the implementation status of environmental preservation as defined in the environmental preservation management regulations*, and reports its findings in order to sustain and improve the Company's environmental level.

Environmental Education

Beginning with plants and business sites, where environmental risk is considered to be greatest, the Environment Division, acting as instructor, conducts environmental education that also targets relevant departments outside of cement plants.

Promotion framework



* Environmental preservation management regulations: These in-house regulations define management organizations for company-wide environmental preservation, contact systems and other items for the purpose of preventing pollution and taking steps to put environmental measures in place. Environmental Preservation Committees based on these regulations are established at every plant, business office and branch to promote environment preservation activities.

Environmental Initiatives

The Sumitomo Osaka Cement Group identifies and analyzes emissions into the atmosphere and water and waste emitted from cement production processes as well as measures for preventing global warming, steps vital to devising more effective measures to reduce environmental impact and conserve energy. Additionally, we are making progress in reducing our environmental impact by developing a variety of applicable technologies and actively utilizing waste and byproducts.

Preventing Global Warming

Electricity used at Headquarter offices to become carbon neutral with the use of inhouse generated biomass electricity

The electricity used for the Company's own rental space on the 20th floor of the Shiodome Sumitomo Building (Minato-ku, Tokyo) to which the Headquarters transferred on November 28, 2022 is carbon neutral with the purchase of non-fossil valued derived from the Company's own Tochigi Plant biomass power station (Sano City, Tochigi Prefecture)*1. Specifically, the electricity used in the Headquarter offices was made carbon neutral through inhouse generated clean electricity via the Green Power Plan for tenants *2 provided by Sumitomo Reality & Development Co., Ltd., utilizing the FIT non-fossil fuel energy certification system with tracking information.

*1 Non-fossil value derived from the Company's Tochigi Plant biomass power station (Sano City, Tochigi Prefecture): The value obtained through purchase of FIT non-fossil fuel energy certificates with tracking information in the renewable energy value trading market.

*2 Green Power Plan for tenants: A decarbonization plan for tenants offered by Sumitomo Reality & Development Co., Ltd., that features not only the conventional effectively green power scheme involving non-fossil fuel energy certificates, enabling each tenant to select its most appropriate green power plan from among several methods for purchasing green power including effectively green power generated at power plants owned by tenant companies.

Introduction of Internal Carbon Pricing System

We have introduced the Internal Carbon Pricing System (hereinafter "ICP System") for capital investment in the Sumitomo Osaka Cement Group. The ICP System is a mechanism to create economic incentives for emission reductions, promote low-carbon investment, and encourage responses to climate change by setting an internal carbon price and converting CO_2 emissions into costs. The Group will use the costs converted by applying the internal carbon price as a reference for investment decisions in capital investment plans that involve an increase or decrease in CO_2 emissions.

Sumitomo Osaka Cement Group ICP System

- Internal carbon price: ¥5,000/t-CO_2
- Target of the ICP System: capital investment involving an increase or decrease in CO_2 emissions
- Operation method: the internal carbon price is applied to the CO_2 emissions associated with the target capital investment plan, and the converted cost is used as a reference for investment decisions.

About the Destruction of Fluorocarbons

Fluorocarbons (CFC, HCFC, HFC) are widely used as refrigerants in air conditioners, refrigerators, and many other types of freezing and refrigeration equipment. They are powerful greenhouse gases with a global warming potential several hundred to over 10,000 times higher than CO_2. Therefore, the emission of fluorocarbons into the atmosphere must be controlled and reduced. Furthermore, CFC and HCFC, which are specified fluorocarbons, are also substances that destroy the ozone layer.

Our Kochi Plant is the only cement plant in Japan to be licensed as a fluorocarbons destruction operator under the Act on Rational Use and Appropriate Management of Fluorocarbons. It accepts separated and collected fluorocarbons, eliminates them in a kiln and contributes to the reduction of greenhouse gases and the restoration of ozone holes (GHG reduction contribution in fiscal 2022 = 214,000 tons).

We also provide technical guidance on the treatment of fluorocarbons in Asian countries, contributing to the destruction of fluorocarbons overseas.

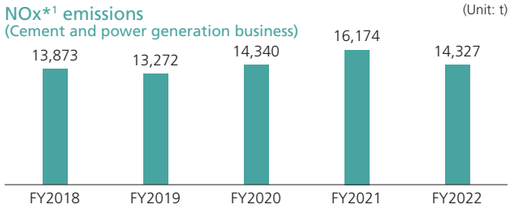
Environmental Initiatives

Preventing Air Pollution

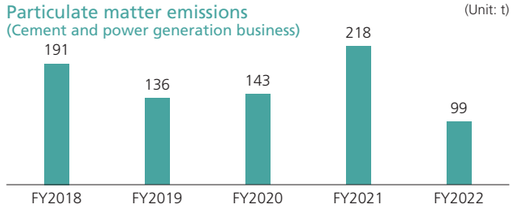
As part of pollution-reduction measures, the Group uses dust collectors and denitrification equipment to prevent the emission of NOx, SOx, particulate matter and other air pollutants contained in gases emitted by cement manufacturing facilities and power generation equipment. Because dioxins and other hazardous substances in emitted gases are decomposed through burning with a high temperature of roughly 1,450 degrees Celsius, cement manufacturing equipment is known for being able to basically carry out detoxification. While the operational scope of this equipment varies year to year, emission levels remain well below legally mandated emissions standards.

Trend of NOx, SOx, Particulate Matter, and Dioxin Emissions

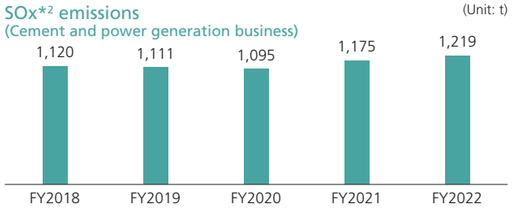
NOx*1 emissions
(Cement and power generation business)



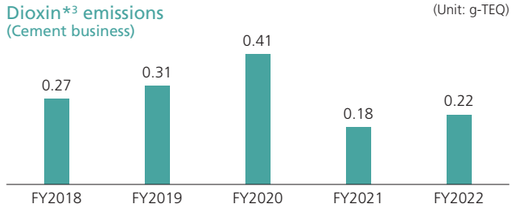
Particulate matter emissions
(Cement and power generation business)



SOx*2 emissions
(Cement and power generation business)



Dioxin*3 emissions
(Cement business)



*1: NOx: This refers to nitrogen oxides, which are gaseous compounds emitted from sources such as automobile exhaust and factory equipment that contribute to air pollution and photochemical smog. In Japan, emissions standards for NOx are defined under the Air Pollution Control Act based on the scale and type of the equipment.

*2: SOx: This refers to sulfur oxides, gaseous compounds that come from burning petroleum and other sulfur-rich substances. SOx is emitted from automobile exhaust and factory equipment and is a contributor to acid rain and other air pollution. As with NOx, emissions standards are set by law.

*3: Dioxins: A type of chlorinated organic compound, dioxins are legally defined as the collective class of substances that include PCDD, PCDF and coplanar PCB.

Preventing Water Pollution

Waste water from our cement plants primarily takes the form of rainwater or of indirect cooling water discharged from cement production facilities or power plants. Furthermore, we have dikes installed around oil tanks and similar structures to prevent oil leaks. When wastewater is released from the plant into the local water zone, sedimentation tanks, oil-water separation tanks and oil monitors are put in place to prevent any contamination.

In terms of water for industrial use, we collect groundwater, seawater and river water, taking only the amount necessary as part of our environmental responsibility to the local community. The power plant at the Kochi Plant uses water it takes from the sea as cooling water, and strives to conserve freshwater resources.

Basic Policy for Protection of Water Resources

In fiscal 2021, to further promote initiatives to conserve limited water resources, we established a new basic policy on water resource protection under the slogan of "Sumitomo Osaka Cement conserves water, utilizes water, and creates a livelihood."

[Basic Policy]

The Sumitomo Osaka Cement Group uses water for cooling and cleaning in the production process. Water is a limited resource, and since good quality water resources are essential for business continuity, we contribute to solving water resource issues by promoting efficient water use and reducing the environmental impact of water intake and wastewater discharge.

Water Intake/Wastewater Results

(Unit: 1,000 t)

		FY2021	FY2022
Water intake	Surface water	38	38
	Groundwater	3,785	4,265
	Water for industrial use/Tap water	4,325	4,228
	Total freshwater intake volume	8,148	8,531
	Total seawater intake volume	5,932	5,820
	Total water intake volume	14,080	14,351
Wastewater	Total freshwater discharge volume	3,157	3,722
	Total other wastewater discharge volume	4,154	3,998
	Total wastewater discharge volume	7,311	7,721
	Freshwater usage volume	6,769	6,631

Scope of data collection: the Company and 48 major affiliates

Response to Water Risks

We conducted water risk assessments for all of Group facilities using the Aqueduct tool released by the World Resources Institute (WRI). We defined areas ranked "High" or higher in the Water Stress Index as water-stressed areas. Based on our assessment, we confirmed that there will be no water-stressed areas in the cement division (plants, power plants, and mines), which accounts for approximately 97% of the Group's total water intake, in 2040. Although there were no pressing issues, we will continue to strive for efficient water use by promoting measures such as water recycling and rainwater utilization.

Material Balance and Energy Balance

Scope of data collection: The Group's 6 cement plants (Tochigi, Gifu, Ako, Kochi, Hachinohe Cement Co., Ltd., Wakayama Slag Cement Co., Ltd.), 8 mines (Karasawa, Gifu, Tochikubo, Ibuki, Taga, Katsumori, Shuho, Kokura), 3 power plants (Tochigi, Ako, Kochi)

Inputs

• Energy

Coal	1,144,000 tons
Petroleum coke	111,000 tons
Waste and byproducts	999,000 tons
Total	2,254,000 tons
Heavy oil	4,000 kl
Light oil	34,000 kl
Kerosene	100 kl
Gasoline	2,000 kl
Total	40,000 kl
Purchased electricity	312,000 MWh

• Materials

Grinding aid	5,183 tons
Gunpowder	2,419 tons
Refractory	9,034 tons
Grinding media and steel casings	628 tons
Lubricants and chemicals	83 tons
Total	17,347 tons

• Raw materials

Natural resources

Excavated limestone	18,788,000 tons
Silica	589,000 tons
Natural gypsum	25,000 tons
Total	19,402,000 tons

Waste and byproducts

Byproduct gypsum	287,000 tons
Coal ash	1,321,000 tons
Soil from construction	216,000 tons
Sludge	352,000 tons
Blast furnace/converter slag	874,000 tons
Nonferrous slag	339,000 tons
Others	535,000 tons
Total	3,924,000 tons

• Water intake

Incl. seawater and river water 13,964,000 tons

Sumitomo Osaka Cement Group — Mines | Cement plants | Power plants

Outputs

• Mineral Resources business

Aggregates, etc.	5,250,000 tons
Limestone products	3,259,000 tons

*Actual results from the Karasawa, Gifu, Tochikubo, Ibuki, Taga, Katsumori, Shuho and Kokura mines

• Cement business

Cement production volume	9,546,000 tons
*Incl. clinker and cement exports	
Retail electricity	718,000 MWh

• Volume of waste, etc. discharged

Waste, etc. outsourced for treatment	1,793 tons
Final disposal volume	636 tons

• Wastewater

Wastewater discharge volume 7,516,000 tons

Information Disclosure Based on TCFD Recommendations

In July 2021, the Company endorsed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) established by the Financial Stability Board (FSB), and conducted a scenario analysis of the impact of climate change on each of our businesses, including the Cement business that accounts for the majority of the CO_2 emitted by the Group.

Governance

As a body to promote initiatives to address sustainability issues such as the Group's climate change issues, the "Sustainability Committee" convenes regularly, chaired by the President. The "Sustainability Committee" has established the expert subcommittee "Carbon Neutral and Environment Subcommittee" as a subordinate body. The "Carbon Neutral and Environment Subcommittee" is chaired by the Director with overall responsibility for both the Production and Technical Department and the Sustainability Department and meets four times a year (every quarter) to formulate annual action plans, including information gathering on climate change issues, risks assessment, formulation of measures, and promotion of in-company training and education programs and manage the progress. Following deliberation at the Subcommittee, important matters deliberated at the Sustainability Committee are reported to the Board of Directors, and initiatives for the Group's 2050 carbon neutrality are managed and supervised through deliberation.

In addition, we have established the Sustainability Department designated to handle matters concerning sustainability issues centered on initiatives for carbon neutrality and biodiversity as a standing organization to administer the Sustainability Committee. (Please see the Sustainability Committee Organizational Chart on page 31)

Strategies (Risks and Opportunities)

We analyzed the impact of climate change on all businesses of the Group on the premise that it was 2030 with reference to scenarios written by bodies such as IPCC (Intergovernmental Panel on Climate Change) and IEA (International Energy Agency).

Risks posed by climate change can be distinguished between the risks associated with a transition to a low carbon society (transition risks) and physical impact (physical risks). We analyzed adopting scenarios that assumed an average global temperature rise of 2 degrees Celsius and 4 degrees Celsius compared to 2021, but then revised the setting in our scenarios to rise of 1.5 degree Celsius*1 and 4 degrees Celsius*2, and we identified items deemed to have a substantial impact in terms of the respective risks and opportunities.

[1.5°C scenario]*1
A scenario for temperatures to rise relative to the levels at the time of the industrial revolution by no more than about 1.5°C in the year 2100, by taking strict measure to address climate change.

[4°C scenario]*2
A scenario for temperatures to rise relative to the levels at the time of the industrial revolution by about 4°C in 2100, with no strict measures taken to address climate change.

*1: The scenario used in the analysis is from the IEA "World Energy Outlook 2022" "NZE2050 (Net Zero Emissions by 2050)"
*2: The scenario used in the analysis is from the IPCC "Fifth Assessment Report RCP8. 5 scenario," etc.

Classification			Risks	Opportunities
Transition Risks	Government policies/ regulations	Carbon tax hike, regulations on greenhouse gas emissions and fossil energy	• As an industry consuming enormous energy, the cement industry is expected to see higher energy costs due to a rise in the price of fossil fuel energy. • Retail Electricity business can be downsized or discontinued if the electrical power plant owned by the Group falls under a non-efficient coal-fired power plant. Purchase of electricity used in plants from retail electricity suppliers as a result of decommissioning of the electric power plant is expected to increase electricity costs.	• The Company's commitment to promote of the use of coal alternatives (waste plastic, biomass fuel) is expected to help boost revenue in the waste collection business. • With a possibility to use idle owned lands, such as sites where a factory previously stood, for building new electricity generation plants, including those to generate renewable energy power, new business is expected to be created with a conception of addressing climate change issues through green electricity and green carbon.
	Technologies	New technology development	• R&D expenses for new technology and capital investment to realize carbon neutrality is expected to increase.	• CO_2 emission reduction technology is expected to help bring in revenues. (Carbonate mineralization technology, artificial photosynthesis hydrogen production technology, ammonia /hydrogen utilization technology) • With the advancement in technology that allows effective use of CO_2 along with an application of such a technology, a large amount of CO_2 can be stably immobilized, and expansion of new businesses is expected. (Methane, methanol, plastic material) • Owned unused patents can be used in new markets.
	Market	Change in user activity	• It is expected that the usage amount of mixed cement will increase and production volume of clinker will decrease • An influx of low-priced cement from countries with low carbon emission costs and prevalence of low carbon cement in the nation advanced in terms of climate change measures can strain cement share. • Demand for low-carbon logistics can contribute to increasing logistical costs.	• Further development, spread, and promotion of low carbon cement and low carbon concrete that the Group has been working on for a long time will accelerate product differentiation, and application to low carbon building structure that is expected to spread and grow will become more common and expands a business. • Concrete pavement with excellent LCC in terms of heat island effect reduction, fuel efficiency effect, and durability can become ubiquitous, and demand for cement may increase.
		Recycling market	• Reduced waste/byproducts (waste oils, waste plastics, coal ash, flue gas desulfurization gypsum, etc.) can bring about intensified competition of waste collection, deterioration of quality, a decline in processing costs, and soaring prices. • Fierce competition to procure biomass fuels will send the price soaring.	• Revenue from waste collection and recycling can be expected from an increase in receivable items that is underpinned by technological advancement in waste and byproducts treatment. • The new business area to extract, refine, and sell resources from wastes is expected to expand thanks to ownership of massive manufacturing infrastructure to collect various wastes and process raw fuels.
		Optoelectronics Business and Advanced Materials Business		• An increase in data traffic due to transformation of life style and work style induced by rising average temperature and electricity supply shortage caused by non-fossil energy conversion will likely boost needs for high capacity, high-speed, and high power-saving devices, resulting in more demand for optical communication parts and semiconductor manufacturing equipment.
	Assessment	Change in stakeholders' assessment	• Difficulty in procuring funds is expected due to lower assessment of greenhouse gas emitter companies.	• Fund procurement and employee hiring can become easily leveraged as a result of a higher evaluation of proactive climate change measures, new technological advancement in CO_2 recycling, promotion of new business, and waste/byproducts processing.
Physical Risks	Acute risks	Frequent and intensified natural disasters	• Supply chain being cut off by frequent large typhoons and torrential rain and ensuing damage to production sites are expected to increase costs incurred in disruption to operations and those required to restoration.	• Demand for cement-related products is expected to increase due to infrastructure development contributing to national resilience, maintenance/reinforcement/repair of structures, and the likes. • With request for disaster waste treatment, more important social role can be fulfilled.
	Chronic risks	Rising average temperature, reoccurring extreme weather	• Rising temperature is expected to affect the health and security of employees at production sites adversely. • Higher sea levels can inflict damage caused by inundation, including high tide along the seaside.	• Increasing demand for labor-saving methods, including those to shorten the construction period and make efficient construction, is expected. • Expansion in demand for marine products and business creation can potentially tap a new source of revenue.

Information Disclosure Based on TCFD Recommendations

Risk Management

The Group drafts the plan for reducing CO_2 emissions at the "Sustainability Committee Carbon Neutral and Environment Subcommittee," which has the Sustainability Department as their secretariat, with the progress managed across the Group. To identify and assess the impact of climate change on the Group's business, we extract and analyze the climate change risks and opportunities, and take appropriate action through the "Sustainability Committee" and Board of Directors, as necessary.

Impact evaluation of risks and opportunities

We evaluated the size of the financial impact of anticipated risks and opportunities as of 2030 based on the scenario analysis of the impact of climate change for all the Group's businesses on page 44, and evaluated the level of impact.

Classification		Risks /opportunities	Impact of 1.5°C scenario
			Negative ← → Positive
Transition Risks	Government policies/ regulations Carbon tax hike, stricter regulations on greenhouse gas emissions and fossil energy	[Risks] • Introduction of a levy system [Opportunities] • Promotion of reduced coal consumption and energy savings	
	Technologies New technology development	[Risks] • Increase in R&D expenses and capital investment to realize carbon neutrality [Opportunities] • Creation of new businesses and carbon businesses	
	Market Recycling market	[Risks] • Change in recycling collection environment [Opportunities] • Progress in technologies using recycling and increase in accepted products	
	Market Optoelectronics Business and Advanced Materials Business	[Opportunities] • Increased demand for optical communication components and semiconductor manufacturing components due to heightened needs for high capacity, high-speed, power-saving devices.	
Physical Risks	Acute risks Frequent and intensified natural disasters	[Risks] • Impact of cement plant accidents [Opportunities] • Increase in demand for infrastructure due to measures for National Resilience, and increase in the maintenance, renewal and repair of concrete, etc.	

Financial Impact with respect to Risks and Opportunities Identified through Scenario Analysis

Risks

- Capital investment for the 2030 reduction target in the "SOCN2050" carbon neutral vision for 2050

Approx. ¥40.0 billion through 2030

2020-2022	¥9.9 billion
2023-2025	¥17.0 billion
2026-2028	¥8.0 billion
2029-2030	¥6.0 billion

- Decrease in costs due to lower coal consumption

Effects will be realized in accordance with progress in capital investment due to increased acceptance of waste plastics, etc., resulting in a decrease in consumption of 200,000 tons/year from 2026 onward.
Impact amount assuming coal price of $200/t

¥6.0 billion to ¥7.5 billion/year from FY2026 onward
(Cumulative effect of ¥39.0 billion from 2020 to 2030)

- Increase in recycling revenue due to increase in alternative raw materials and thermal energy resulting from lower coal consumption, etc.

Impact amount calculated at a unit price that takes into account the difficulty of procurement in the future

Approx. ¥1.0 billion/year from FY2026 onward
(Cumulative effect of ¥8.0 billion from 2020 to 2030)

Capital Investment Amount and Effect for 2030 Reduction Target in the "SOCN2050" Carbon Neutral Vision for 2050

(Billions of yen)

	FY2020-2022	FY2023-2025	FY2026-2028	FY2029-2030	Total
Environmental investment	9.9	17.0	8.0	6.0	Approx. 40.0
Depreciation	(1.9)	(10.0)	(13.0)	(7.0)	(32.0)
Coal reduction	+0.4	+4.5	+19.0	+15.0	+39.0
Recycling increase	+0.1	+2.5	+3.0	+2.0	Approx. +8.0
Investment effect	**(1.3)**	**(3.0)**	**+9.0**	**+10.0**	**Approx. +15.0**

Indicators and targets

The Group declared "Care for the global environment" to be one of the items of materiality, the primary social issues the Group aims to tackle through its corporate activities, and it has taken initiatives to prevent global warming, including the promotion of energy alternatives through recycling and the use of biomass power generation. In addition, in December 2020, we formulated specific medium-term targets towards "2050 carbon neutrality" and the 2050 "Carbon Neutral" vision "SOCN2050," which is our long-term action policy. Through various measures up until 2050, we will take on the challenge for the Group's corporate activities to be carbon neutral, while advancing initiatives that contribute to the decarbonization of society as a whole through the supply chain.

In future, we will further promote our challenge to achieve 2050 carbon neutrality through participation in the GX League.

Message from Plant Managers

Small group improvement intiatives at each plant

We are carrying out "FSO activities"*1 at each of the Group's cement plants and Group company Hachinohe Cement Co., Ltd. is carrying out small group improvement activities called "DH activities."*2 Every year, we form small teams for each partner company resident within each division and location, determine activity themes from items such as energy saving, reducing CO_2 emissions, improvements in daily operations, improving work efficiency, health and safety and cooperate to carry out improvement activities. In addition, the best performing teams from each plant compete for the top peformance award announced at an annual company-wide presentation. Through such activities, we aim to improve autonomy and problem-solving ability and to further foster teamwork.

*1 FSO activities: the abbreviation of Fresh Sumitomo Osaka activities
*2 DH activities: the abbreviation of Development Hachinohe activities

Initiatives of "FSO activities" Tochigi Plant

General Manager,
Tochigi Plant
Hiroshi Ohashi

Tochigi plant is encouraging FSO activities for 10 groups of employee worksites and three groups of partner companies. In fiscal 2022, the initiatives were on themes including reducing workload and improving the facilities and the environment. This time, we introduce the initiative of the electricity-related group "Energy savings through revision of No.3K lighting facilities." No.3K was constructed 30 years ago, and with the aging of the lighting facilities, and the installation of new facilities, there are many places where the light does not illuminate that are dark at night and dangerous. So, the activities have the purpose of improving the work environment, improving safety and saving energy. As a preliminary investigation, the power consumption of lighting facilities was measured, and the best places to locate lighting were investigated with mobile lighting facilities, and lighting facilities were newly relocated based on the results. Mercury lamps with high power consumption were replaced with LED lights and the rules for turning on and off lights were revised. The plan was to improve the work environment and improve safety through these activities, but success was also achieved by reducing the power consumption of lighting facilities by 29%. Hidden waste will continue to be discovered and improvements made through these FSO activities.

No.3K facilities, which changed to LED lighting

Initiatives of "FSO activities" Gifu Plant

General Manager,
Gifu Plant
Tetsuo Yokobori

In the FSO of the Gifu Plant, the handmade feeling of participants is valued. They think by themselves and take action, and implement improvement activities through their own efforts. Looking at the plants, there are places and equipment that have been improved by many FSO. In addition, the basis for plant operations is the 5S framework (Seiri (Sort), Seiton (Set in order), Seisou (Shine/clean), Seiketsu (Standardize) and Shitsuke (Sustain)), and we have made it possible to promote the 5S even in FSO activities.

This time we are introducing the theme of "Establishment of a method to utilize simple vacuum" that involved Gifukousan, Inc. This is the simple vacuum introduced last year, and although it had easy aspects, it also had aspects that made it difficult to use and inefficient. By devising various attachments and tools for cleaning, the efficiency was greatly improved and the features were improved so that it would fit in a vacuum truck. Now, the vacuum truck and the simple vacuum are used together and contribute greatly to the cleanliness and beautification of plants.

We plan to continue promoting cost reduction at plants, 5S and safety measures, enlivening FSO with wisdom and devices.

Testing the simple vacuum

Initiatives of "FSO activities" Ako Plant

General Manager,
Ako Plant
Akio Hamada

A total of 19 groups of employees and partner companies are active at the Ako Plant. Among Ako Plant's activities are improvement activities at waste plastic transportation facilities, a source of coal alternatives. Waste plastic come in various types, big and small, and have different weights and properties. Waste plastic is measured, loaded onto a belt conveyor and used in a temporary incinerator furnace, but the volume transported is not equal due to the types and properties of the waste plastic, so the volume becomes large when the plastics are particularly light, resulting in spillage. Spilled waste plastic is scattered by the wind and has a negative impact on the environment. Therefore, operations were conducted by suppressing the volume of waste plastic used.

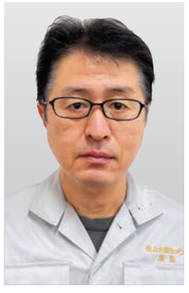
In this activity, the following improvements were implemented.

① Acceleration of the belt conveyor
② The waste plastic heaped on the conveyor is smoothed to an equal level of thickness with a scraper
③ A board is installed at the bottom of the belt conveyor to prevent wind

As a result, spillage was eliminated and waste plastic could be used to the maximum stability possible. Reducing coal consumption and greatly contributing to the beautification of the environment near facilities, and this impact continues today. In future, we will also incorporate themes that link to decarbonization in FSO activities.

Belt conveyor adjustment work

Initiatives of "FSO activities" Kochi Plant



General Manager,
Kochi Plant
Masato Hiroshima

At the Kochi Plant, a total of 19 groups of the Company's employees and partner companies every year select a leader for each group, determine a theme and undertake activities. This time, we introduce an award-winning activity from fiscal 2022. The theme is to "Prevent trouble in slag mill supply transport equipment." This supply transport equipment comprises a flex belt conveyor that transports slag and plaster and a scraper that transports anything that is spilled. The flex belt conveyor is inside a steel case and lumps of the transported material that stick to the case during transport drop and repeatedly damaged the scraper. The leader was a new employee, but had success. Without deciding that the transported materials were sticking, the trouble was solved by investigating literature about why things stick and testing was done on how to advance items that were stuck, with the implementation of a number of appropriate measures that solved the problem. At present, the slag mill can operate without night shift patrols, and the impact of this activity was very large.

Lower section of the flex BC

Initiatives of "DH activities" Hachinohe Cement Co., Ltd.

President,
Hachinohe Cement Co., Ltd.
Tomoya Akeshiro

At Hachinohe Cement, QC circle activities commenced from 1979, with the name changed to DH (Development Hachinohe) activities from 1983, and are now in their 45th year. Activities span various measures including stable operations, energy savings, improvements to the workplace environment, and measures to address safety, quality and the environment. Here we introduce activities that were initiated last fiscal year. The theme of the activity is "slag mills – improving the method for adjusting material guides." The company manufactures the slag powder used in blast furnace cement inhouse. There needs to be facilities which can be adjusted in a short period of time, and that maintain optimal settings to product stable operations and high energy efficiency. This time, the company implemented improvements to the method for adjusting material guides and revised the abrasion prevention measures. As a result of achieving the target, this led to stable supply as well as improvement in the energy basic unit. Furthermore, the company also obtained improvements in the work environment as well as improvements in safety aspects. In future, the company will build a company that it trusted by the region through DH activities.

State of onsite work

Resource Recycling

At Sumitomo Osaka Cement Group, when manufacturing cement, we use waste and byproducts that arise from various industries and local governments, which has put us in charge of one part of the "recycling-based society."

Social Role of Cement Recycling

Cement is a chemical substance characterized by the chemical reaction called hydration that occurs when water is mixed with cement. Cement is mainly composed of calcium, silicon, alumina and iron, which are produced by compounding and burning them at a high temperature of approximately 1,450 degrees Celsius.

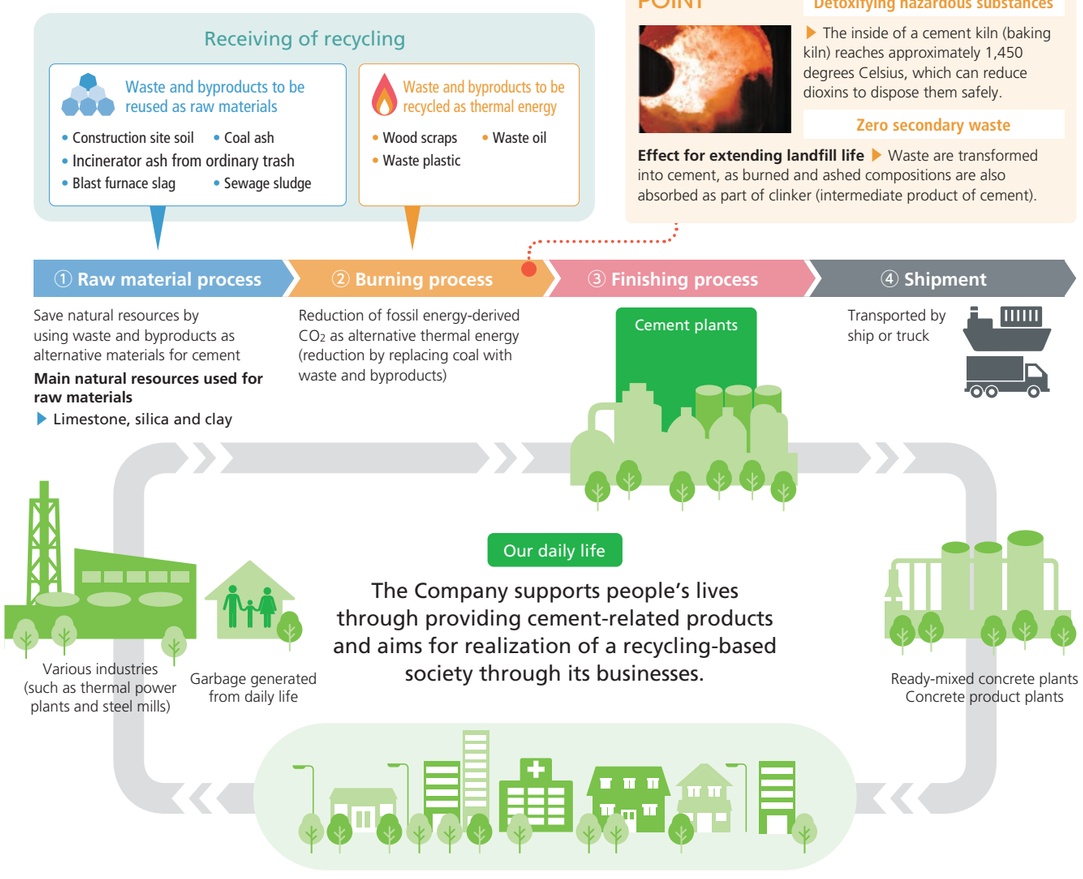
The main components are abundant in natural resources such as limestone, clay and silica, but waste and byproducts also contain similar components so they can be used as a substitute for cement raw materials. Now we no longer use natural clay as a result of the recycling of waste and byproducts.

Waste and byproducts from other industries and local governments, including wood scraps, waste oil/recycled oil and waste plastic are used in combination with coal as thermal energy in the burning process at approximately 1,450 degrees Celsius. Since these are directly burnt inside the kiln, the ash and residues that remain after burning are also reused as part of the cement raw material, and everything is transformed into cement products, generating no unwanted substances.

Such a recycling effort controls use of natural resources such as clay and coal, and also leads to CO_2 emission reduction as a substitute for fossil energy, and contributes to prolonging the life of the landfill, which is the final waste disposal yard.

The Group also accepts disaster waste generated by earthquakes and flood damage, which are reusable as alternative raw materials and thermal energy.

• Cement recycling in daily life



POINT **Detoxifying hazardous substances**

▶ The inside of a cement kiln (baking kiln) reaches approximately 1,450 degrees Celsius, which can reduce dioxins to dispose them safely.

Zero secondary waste

Effect for extending landfill life ▶ Waste are transformed into cement, as burned and ashed compositions are also absorbed as part of clinker (intermediate product of cement).

Ichikawa Recycle Center/Completion of ordinary trash treatment facilities

Coal ash derived from coal-fired power stations as an alumina source, which is one main component of cement, is often used, but with the transition to an international decarbonized society, we anticipate that coal ash will be reduced over time. Meanwhile, the Company is involved in increasing the volume of incinerator ash emitted from incinerator facilities such as for household trash collected by local governments as individual alumina sources as alternatives to coal ash. Incinerator ash is stably available alumina source, while also including CaO (Calcium oxide), so we also forecast it will have the effect of reducing process-derived CO_2. On the other hand, incinerator ash requires pre-treatment such as foreign matter removal for it to be effectively used as a cement raw material.

Ichikawa Recycle Center
Ordinary trash treatment facilities

At the treatment facilities installed at the Ichikawa Recycle Center in February 2023, incinerator is sorted and crushed with processing capacity of 640t per day. In addition, the warehouse attached to the treatment facilities have a maximum storage capacity of 2,600t, so incinerator ash can be stably received.

The total volume of treated incinerator ash is transported to the Group's cement plants and recycled as cement raw material.

Building a Cooperative System with Local Governments

The Group has been promoting to support quick recovery and fast revitalization by accepting disaster waste when distastes occur and concluding various agreements as part of efforts to build a system to cooperate with municipalities to solve various issues.

In 2022, the Company and the group company Hachinohe Cement Co., Ltd. respectively concluded "Comprehensive Cooperation Agreements" with Hachinohe City, Aomori Prefecture in March and Aomori Prefecture in December, while the Company concluded a "Comprehensive Cooperation Agreement" with Sano City, Tochigi Prefecture in June.

Under these agreements, in the event of a large-scale disaster and a large volume of disaster waste is generated in the prefecture or the city with which the agreement is concluded, the cement plants of the Company and Group companies will reuse as much of the disaster waste as possible as raw materials for cement production and thermal energy. In addition, we have also agreed to closely cooperate on various issues such as reducing environmental impact through upcycling of waste into cement resources, promoting environmental education, revitalizing local community daily living, and improving services for prefectural residents toward realizing a sustainable society.

Aomori Prefecture

• Signing parties of the agreement on the treatment of disaster waste

- September 2019 Ako City, Hyogo Prefecture "Agreement on Cooperation in the Establishment of Temporary Sites for Disaster Waste Storage"
- October 2019 Kochi Prefecture and Susaki City, Kochi Prefecture "Agreement on Cooperation in the Disposal of Disaster Waste"
- March 2020 Funabashi City, Chiba Prefecture "Basic Agreement on Disposal of Disaster Waste"
- October 2020 Miyagi Prefecture "Comprehensive Cooperation Agreement"
- December 2020 Tochigi Prefecture "Comprehensive Cooperation Agreement"
- July 2021 Ako City, Hyogo Prefecture "Comprehensive Cooperation Agreement"
- August 2021 Kashiwa City, Chiba Prefecture "Agreement on Disposal of Disaster Waste"
- November 2021 Hyogo Prefecture "Comprehensive Cooperation Agreement"
- March 2022 Hachinohe City, Aomori Prefecture "Comprehensive Cooperation Agreement"
- June 2022 Sano City, Tochigi Prefecture "Comprehensive Cooperation Agreement"
- December 2022 Aomori Prefecture "Comprehensive Cooperation Agreement"

Status of Waste and Byproduct Use

In fiscal 2022, we used 4,922,000 t of waste and byproducts. This was about a 6% reduction from the volume used in FY2021, which was mainly due to the decrease in the volume of cement production, however it is among the best consumption rates in the industry on a basic unit basis.

		FY2018	FY2019	FY2020	FY2021	FY2022
Raw material-related waste*1	(Unit: 1,000 t)	2,883	2,911	2,739	2,717	2,605
Thermal energy-related waste*2	(Unit: 1,000 t)	367	378	394	399	402
Byproducts*3	(Unit: 1,000 t)	2,289	2,190	2,077	2,117	1,915
Subtotal	(Unit: 1,000 t)	5,538	5,479	5,210	5,233	4,922
Cement production volume	(Unit: 1,000 t)	10,758	10,550	10,041	10,085	9,546
Basic unit (kg/ton-cement)	Raw material-related	268	276	273	269	273
	Thermal energy-related	34	36	39	40	42
	Byproducts	213	208	207	210	201
Total (kg/ton-cement)		515	519	519	519	516

*1 Raw material waste: coal ash, waste soil from construction work, waste sludge, burnt husks and dust, sludge, rubble, waste acid, waste alkali, slag, others

*2 Thermal energy waste: waste plastic, waste clay, waste oil, waste tires, wood scraps, others

*3 Byproducts: incinerator slag, byproduct gypsum, wood chips (including those for retail power generation), others

Topics

In March 2023, the Company commenced verification testing at the Tochigi Plant of recycling unwanted carpets and futons (mattresses) collected by Nitori Co., Ltd. following interim treatment (crushing) by Takeei Corporation as raw materials and thermal energy when firing cement.

Collected unwanted carpets and futon (mattresses)

Preserving Biodiversity

Given their use of limestone, coal and other natural resources in operations, the Sumitomo Osaka Cement Group's Cement-related businesses by their very nature could potentially impact directly or indirectly the surrounding ecosystem. We believe that paying close attention to the environment and preserving biodiversity are essential and indispensable to sustaining our ability to operate as an enterprise.

The environmental philosophy of the Group is summarized as follows: "The Sumitomo Osaka Cement Group aims to contribute to the preservation of the global environment and create abundance in society by pursuing environmentally friendly manufacturing, power generating and distribution operations in order to maintain harmony between the environment and corporate activities." Based on this philosophy, we conduct reforestation programs around mines and production plants and develop marine products to assist ocean environment recovery among our actions for proactively contributing to the preservation of biodiversity.

Expansion of Marine Products Business

The Company commenced the marine products business to manufacture and install marine reefs and seaweed beds, applying concrete precast technologies, more than 40 years ago.

Sea desertification, where seaweed disappears due to the effects of global warming and other causes, has become evident along Japan's coasts since about 2000. Since the catch is ultimately declining as a result of the decrease in fish spawning grounds and fry hiding place, the Company commenced the business of manufacturing and installing seaweed beds due to the need to revive seaweed beds. K-hat Reef Beta is a multifunctional seaweed cultivation artificial marine reef that utilizes the Group's proprietary nursery type seaweed cultivation technology. The reef functions as a "core seaweed bed," where seaweed grown inside the reef supplies the seeds for more plants to revive seaweed beds. This is a revolutionary initiative for marine public works projects, and to date, more than 3,800 seaweed beds have been sunk, mainly in Nagasaki Prefecture. Sumitomo Osaka Cement is currently working with its subsidiary SNC Co., Ltd. to establish these marine products businesses in an effort to preserve the ocean's environment.

In recent years, the value of seaweed beds has risen with the awareness of the absorption and fixation of CO_2= blue carbon, and we anticipate an increase in local governments and private-sector companies taking initiatives in the creation of seaweed beds. We are committed to assisting in the creation of seaweed beds by making full use of our experience and know-how accumulated in our seaweed cultivation business over the past 20 years, since before the term "blue carbon" even existed.

In addition, the Company purchased "blue carbon credits" issued by Goto City, Nagasaki Prefecture for the purpose of seaweed beds reviving activities in July 2023. Together with further promoting the development of the marine products business, we will further contribute to preserving the biodiversity and reducing CO_2 emissions through cooperation with local governments.

Seaweed bed sinking work

Seaweed bed placed on the seafloor

Participation in the "30by30 Alliance for Biodiversity"

The Company participates in the "30by30 Alliance for Biodiversity." 30by30 is an international target to support biodiversity with countries aiming to conserve and protect at least 30% of their land and sea areas, with a goal of halting and reversing losses to biodiversity in Japan as a whole by 2030.

Endorsement of the "Declaration of Biodiversity Initiative by Keidanren (Japan Business Federation)"

We expressed our endorsement of the Declaration of Biodiversity Initiative by Keidanren (Japan Business Federation)*. The Group's corporate philosophy is consistent with the philosophy of the Declaration of Biodiversity by Keidanren. For preserving biodiversity, we have been engaged in regreening of former mines, developing marine products business (artificial marine reefs and seaweed beds) and conserving Tsushima leopard cats.

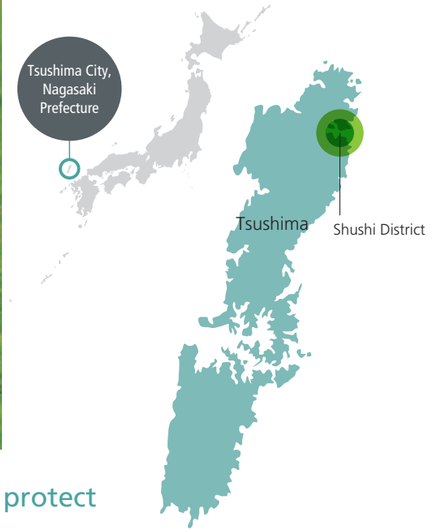
* The Declaration of Biodiversity Initiative by Keidanren involves companies and organizations that take initiatives for multiple of the seven items that constitute the "Keidanren Declaration on Biodiversity and Action Guidelines (revised edition)" or that have endorsed the overall objectives.

Tsushima Leopard Cat Protection Activities

National Endangered Species of Wild Fauna and Flora: Tsushima leopard cat

Only distributed in Tsushima City, Nagasaki Prefecture. The number of Tsushima leopard cats estimated to be less than 100 (90 or 100) (according to the Ministry of the Environment website).

Photo credit: Noted wildlife photographer Makoto Kawaguchi



We have been restoring the natural environment to protect the Tsushima leopard cat at the site of a clay mine.

In the Shushi District of Tsushima City (Nagasaki Prefecture), Sumitomo Osaka Cement owns a forest (approximately 16 hectares) designated for the extraction of clay, a cement raw material. With the cement industry aggressively promoting the recycling of industrial waste, alternatives have emerged to replace natural clay in cement manufacturing. Consequently, the Company never extracted any clay from the forest, which was left idle.

This idle land, as it turns out, is the habitat of one of Japan's most endangered species, the Tsushima leopard cat. In 2007, Sumitomo Osaka Cement Group began protecting the natural environment of this forest in the idle land and started taking part in collaborative protection programs. In cooperation with local Tsushima residents, we have grown the forest substantially, clearing away brush and planting deciduous trees, which drop acorns eaten by field mice, the small creatures that are prey for the Tsushima leopard cat. In these ways, we have been restoring the natural environment by preparing an environment from the ecosystem up that the Tsushima leopard cat will find welcoming.

Participation in Nature Conservation and Observation Tour in the Shushi Forest

On May 28, 2023, following on from last year, a nature watching event was held by the Committee promoting the creation of the Shushi Forest, with participation by Group employees. On the day of the event, a total of 29 participants, including 15 general participants, the Tsushima City Hall, the Shushi District Special Committee, and the Wildlife Conservation Center, participated.

On the day, a large age range of participants attended from children to the elderly, who observed while enjoying fine weather. The Committee promoting the creation of the Shushi Forest introduced the Tsushima leopard cat protection activities being carried out at the Shushi Forest and provided explanation about the types and features of the wild grasses that are being grown, while participants took a gentle stroll through the Shushi Forest.

We will continue to promote our conservation activities by participating in Tsushima leopard cat-related events such as nature observation tours.

Participants at the Shushi Forest Nature Conservation and Observation Tour

Explanation to participants