Calculation Standards for Environmental and Social Data Indicators

We report on each indicator using the following calculation methods.

GHG emissions quantification is subject to uncertainty when measuring activity data, determining emission factors, and considering scientific uncertainty inherent in the Global Warming Potentials.

Environmental Data Indicator		Unit	Calculation Method
Energy	Energy consumption	Thousand kl of crude oil	{(Amount of electricity purchased × Per-unit heating value + Amount of heat purchased × Per-unit heating value) + Σ (Amount of each fuel used × Per-unit heating value for each fuel)} × 0.0258 The per-unit heating value of electricity, per-unit heating value for each fuel, and the types of fuel included in the scope of calculation are based on the values and calculation methods outlined in the Act on the Rational Use of Energy and Shift to Non-fossil Energy (the law's name was changed in April 2023). Because we calculated GHG emissions refer to the GHG Protocol from fiscal 2017, the energy usage amount includes the energy used to produce electricity and steam sold to external parties by the Group. The heating value used overseas is based on standard heating values used in the formulation of Japanese laws.
Amount of Exhaustible Resources Used	Hydrocarbon compounds	Thousand tons	Total amount of hydrocarbon compounds used as raw materials (limited to materials purchased from outside the Sumitomo Chemical Group).
	Metals (excluding minor metals)	Thousand tons	Total amount of metals, excluding minor metals, used as raw materials: iron, gold, silver, copper, zinc, aluminum, lead, platinum, titanium, palladium, gallium, and lithium (limited to materials purchased from outside the Sumitomo Chemical Group).
	Minor metals	Thousand tons	Total amount of minor metals used as raw materials: nickel, chromium, tungsten, cobalt, molybdenum, manganese, and vanadium (limited to materials purchased from outside the Sumitomo Chemical Group).
Water	Industrial water Drinking water Seawater Groundwater Other water	Million tons	Amount of industrial water, drinking water, seawater, groundwater, and other water withdrawal volume.
PCBs/CFCs in Use or under Secure Storage	No. of devices containing high concentrations of PCBs	Units	The number of devices containing high concentrations of PCBs, such as condensers and transformers, that are currently in use or under secure storage. Does not include fluorescent lamps and mercury lamp ballasts or contaminated substances (wastepaper, etc.).
	PCB volume	kl	The total amount of PCBs in devices containing concentrations of PCBs, calculated as the net PCB content by volume. Does not include fluorescent lamps and mercury lamp ballasts or contaminated substances (wastepaper, etc.).
	No. of refrigeration units using specified CFCs as a coolant	Units	The number of refrigeration units using specified CFCs as a coolant.
	No. of refrigeration units using specified HCFCs as a coolant	Units	The number of refrigeration units using specified HCFCs as a coolant.
Products	Calculated on the basis of ethylene production	Thousand tons	The production volume of products is calculated on the basis of ethylene production, using the amount of energy necessary to manufacture the products by weight and the amount of energy necessary for ethylene production by weight. Some assumptions were made in calculations due to the difficulty of obtaining weight-based figures for certain products.
Water Pollutant Emissions	COD	Tons	The total amount of COD emitted into public water area (coastal waters/waterways) and sewer systems. Calculated as: The COD concentration at drains included in the scope of calculation × The amount of water drained into public water bodies and sewer systems from each drain.
	Phosphorus	Tons	The total amount of phosphorus emitted into public water area (coastal waters/waterways) and sewer systems. Calculated as: The phosphorus concentration at drains included in the scope of calculation × The amount of water drained into public water bodies and sewer systems from each drain.
	Nitrogen	Tons	The total amount of nitrogen emitted into public water area (coastal waters/waterways) and sewer systems. Calculated as: The nitrogen concentration at drains included in the scope of calculation × The amount of water drained into public water bodies and sewer systems from each drain.

Environmental Data Indicator		Unit	Calculation Method
Waste Materials	Landfill disposal amount: – External landfill	Thousand tons	The total amount of waste disposed of in landfills.
Atmospheric Emissions	Greenhouse gas emissions	Thousand tons of CO_2	**CO_2 emissions from energy use:** Amount of electricity purchased × CO_2 emission factors for electricity + Amount of steam purchased × CO_2 emission factors for steam + Σ (Amount of each fuel used × Per-unit heating value for each fuel × CO_2 emission coefficient for each fuel) The CO_2 emission factors for steam, per-unit heating value for each fuel, and CO_2 emission factors for each fuel are based on the values outlined in the Greenhouse Gas Emissions Accounting, Reporting, and Disclosure System of the Act on Promotion of Global Warming Countermeasures. The CO_2 emission factors for city gas are based on basic emission factors. The CO_2 emission factors for electricity in Japan use the values for each fiscal year by electric power company (Basic Emissions Factor) and those for overseas use the values by electric power company along with the IEA's 2022 efficiency indicators for each country. From fiscal 2017, results include the energy used to produce the power and steam sold to external parties refer to the GHG Protocol. From fiscal 2024, results are based on Basic Emissions Factor for the electricity CO_2 emission factors in Japan. **CO_2 emissions from other than energy use and non-CO_2 GHG emissions:** In Japan, results are based on the calculation method outlined in the Greenhouse Gas Emissions Accounting, Reporting, and Disclosure System of the Act on Promotion of Global Warming Countermeasures. From fiscal 2017, results include CO_2 emissions generated by processes not subject to reporting under the Act on Promotion of Global Warming Countermeasures. Overseas, figures are calculated in accordance with the laws and regulations of their respective countries.
	NOx	Tons	The total amount of nitrogen oxides originating from facilities specified in the Air Pollution Control Act. Calculated as: Each facility's dry gas emission volume × NOx (N_2O) concentration.
	SOx	Tons	The total amount of sulfur oxides originating from facilities specified in the Air Pollution Control Act. Calculated as: Amount of sulfur in fuel used by each facility × Amount of fuel used. Or calculated as: Each facility's dry gas emission volume × SOx (SO_2) concentration.
	Soot and dust	Tons	The total amount of soot and dust originating from facilities specified in the Air Pollution Control Act. Calculated as: Each facility's dry gas emission volume × Soot and dust concentration.
Substances Subject to the PRTR Act	Atmospheric emissions, water pollutant emission	Tons	Calculated based on the Order for Enforcement of the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (amended Order for Enforcement of the PRTR Act).
Logistics	Energy consumption	Thousand kl of crude oil	The energy consumption is calculated as 10 GJ = 0.258 kl of crude oil, based on the Energy Saving Act Guide Book for Shippers written and edited by Japan's Agency for Natural Resources and Energy.
	CO_2 emissions	Thousand tons of CO_2	Calculated based on the Manual for Calculation and Report of Greenhouse Gas Emissions from Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry using the energy consumption calculated above in GJ.
Scope 3 Greenhouse Gas Emissions	Category 1: Purchased goods and services	Tons of CO_2	Σ {(Volume and monetary amount of goods and services purchased and acquired × Emission intensity)} Values used for emission intensity (volume) are based on the values outlined in the Inventory Database (AIST-IDEA Ver. 3.4, IPCC 2021 GWP 100a without LULUCF). Values used for emission intensity (monetary amount) calculations are based on the values outlined in Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.5).
	Category 2: Capital goods	Tons of CO_2	Σ {(Value of capital goods) × (Emission intensity)} Values used for emission intensity are based on the values outlined in Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.5).
	Category 3: Fuel- and energy-related activities (not included in scope 1 or scope 2)	Tons of CO_2	Σ {(Amount of electricity purchased) × (Emissions intensity)} + Σ {(Amount of heat purchased) × (Emissions intensity)} + Σ {(Amount of each fuel used) × (Emissions intensity for each fuel)} Values used for emission intensity are based on the values outlined in Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.5) and the Inventory Database (AIST-IDEA Ver. 3.4, IPCC 2021 GWP 100a without LULUCF).
	Category 4: Upstream transportation and distribution	Tons of CO_2	Calculated by the calculation method for CO_2 emissions in logistics area or by using values based on the Inventory Database (AIST-IDEA Ver. 3.4, IPCC 2021 GWP 100a without LULUCF).
	Category 5: Waste generated in operations	Tons of CO_2	Σ (Amount of waste by type × CO_2 emissions intensity of waste by type) CO_2 emissions intensity of waste by type are based on the values outlined in Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.5).
	Category 6: Business travel	Tons of CO_2	By mode of travel: Σ (Expenses paid for transportation × Emission intensity) Values used for emission intensity are based on the values outlined in Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.5).

Environmental Data Indicator		Unit	Calculation Method
Scope 3 Greenhouse Gas Emissions	Category 7: Employee commuting	Tons of CO_2	By mode of commuting: Σ (Expenses paid for transportation × Emission intensity) Values used for emission intensity are based on the values outlined in Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.5) and the Inventory Database (AIST-IDEA Ver. 3.4, IPCC 2021 GWP 100a without LULUCF).
	Category 8: Upstream leased assets	Tons of CO_2	Calculations of emissions from leased vehicles: Σ (Amount of gasoline consumed annually per vehicle × Emission intensity) The amount of gasoline consumed annually per vehicle is calculated using the Annual Report on Automobile Transportation Statistics. Values used for emission intensity are based on the emission factors outlined in the Accounting, Reporting, and Disclosure System of the Act on Promotion of Global Warming Countermeasures.
	Category 9: Downstream transportation and distribution	Tons of CO_2	Refer to the calculation method used for CO_2 emissions in the logistics section above. Calculations are for fertilizer products for which the sales destination are known and that are sold to consumers as final products.
	Category 10: Processing of sold products	Tons of CO_2	The Group's products are mainly materials and components used for various applications, which makes it difficult to know such details as the nature of the processing products undergo after delivery. Based on the calculation guidelines for the chemical industry created by the WBCSD, the Group is exempted from this category.
	Category 11: Use of sold products	Tons of CO_2	Calculations are for the pharmaceutical product fixed-dose mist inhalers as well as fertilizer products for which GHG emissions levels are known and that are sold to consumers as final products. Σ (Fertilizer sales volume by type × Percentage of nitrogen in fertilizers by type × N_2O emission factors by type × 265 (GWP)) Σ (HFC volume in fixed-dose mist inhalers × GWP) Values for GWP are based on global warming emission factors listed in the Calculation Method and Emission Factors Chart (updated December 12, 2023 (partially revised July 11, 2024)) in the Accounting, Reporting, and Disclosure System of the Order for Enforcement of the Act on Promotion of Global Warming Countermeasures.
	Category 12: End-of-life treatment of sold products	Tons of CO_2	Calculations are for the Group's main resin-related products. Σ {(Production volume of resin-related products) × (Emission intensity)} Values used for emission intensity are based on the values outlined in Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.5).
	Category 13: Downstream leased assets	Tons of CO_2	There are no relevant leased assets.
	Category 14: Franchises	Tons of CO_2	There are no relevant operations.
	Category 15: Investments	Tons of CO_2	Because Sumitomo Chemical changed its approach to financial control consolidation for disclosure purposes from fiscal 2017, the Group is now exempted from this category.

Social and Economic Data Indicator		Unit	Calculation Method
Occupational Safety and Health	Frequency rate	—	(Number of lost-workday injuries and casualties ÷ Cumulative total of hours worked) × 1,000,000
	Severity rate	—	(Cumulative total of workdays lost ÷ Cumulative total of hours worked) × 1,000

Environmental Accounting Indicators		Unit	Calculation Method
Environmental Protection Costs		Billion yen	Costs include depreciation.
Economic Benefits	Reduced costs through energy saving	Billion yen	Reduced costs of energy through energy-saving activities.
	Reduced costs through resource saving	Billion yen	Reduced costs of waste processing attributable to resource-saving activities.
	Reduced costs through recycling activities	Billion yen	Reduced costs of waste processing compared to the previous fiscal year through waste reduction attributable to recycling activities and gains on sales of valuable resources obtained from recycling, etc.