

TCFD

REPORT

Task Force on Climate-related
Financial Disclosures Report

2024



NIPPON FINE CHEMICAL CO., LTD.

Initiatives in Line with TCFD Recommendations

The Nippon Fine Chemical Group manufactures a wide variety of products, and uses raw materials derived from fossils and fossil fuels in the manufacture of our products. Based on our recognition that climate change risks and opportunities are important management issues, in December 2021, we expressed our support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). We use scenario analysis to assess the risks and opportunities of the impact of climate change on our business. Going forward, we

will strengthen the resilience of our strategies by recognizing the significance of such risks and opportunities and reflecting such significant in our management measures. We are also promoting the reduction of greenhouse gas emissions, with the goal of reducing our carbon dioxide emissions by 38% in FY2030 compared to FY2013. By publicizing our efforts and increasing corporate transparency, we will work to strengthen relationships of trust with our stakeholders.

Governance

Nippon Fine Chemical has established the Sustainability Promotion Committee, chaired by our Representative Director, President and composed of members selected from each division and our Group companies.

The Sustainability Promotion Committee assesses the significance of risks and opportunities identified based on scenario analysis of issues related to climate change. The Committee also formulates promotion action plans for issues and manages their progress.

The Sustainability Promotion Committee puts together a promotion action plan once a year, which the Board of Directors approves following deliberation by the Management Meeting.

The progress of activities is checked by the Sustainability Promotion Committee each quarter, in principle, and the results of such checks are reported to the Management Meeting and the Board of Directors. The Board of Directors is responsible for overseeing such activities.

Nippon Fine Chemical has joined the TCFD Consortium and shares details of external trends and information on climate change obtained therefrom with the Sustainability Promotion Committee, the Management Meeting and the Board of Directors.

To promote the reduction of greenhouse gas emissions, the Board of Directors approves and announces targets such as a 38% reduction in carbon dioxide emissions by FY2030 compared to FY2013 levels. In addition, the state of achievement of materialities, including the reduction of carbon dioxide emissions, is reflected in performance-linked remuneration paid to directors and corporate officers.

In FY2024, in addition to clarifying the roles of existing committees to enhance their business execution functions and



(Note) Reflects updated organization from FY2024.

strengthening our corporate governance system, we established a new Sustainable Management Committee to oversee and guide four of our committees, including the Sustainability Promotion Committee and the Risk Management System Promotion Committee, in order to promote our response to increasingly important sustainability issues. The Sustainability Promotion Committee, which was previously chaired by the Representative Director, President, is now chaired by the Senior Corporate Officer and Senior General Manager Administration Division. In addition, in FY2024, we transferred the role of the Management Meeting in sustainability promotion activities to the Sustainable Management Committee, which is chaired by the Representative Director, President.

● Sustainability Promotion Committee Agenda for FY2023

Timing of Meeting		Main Matters Discussed
April	2023	Confirmation of the progress of the plan to achieve numerical materiality goals for FY2022
May	2023	Confirmation of numerical materiality goals for FY2023
July	2023	Development of a plan to achieve numerical materiality goals for FY2023
October	2023	Confirmation of TCFD risk importance evaluations and definition of scenario groups
October	2023	Confirmation of the progress of the plan to achieve numerical materiality goals for FY2023
November	2023	Identification of TCFD business impact estimate updates
December	2023	Discussions on TCFD business impact evaluations and countermeasure estimates
January	2024	Discussions on TCFD countermeasures, indicators and targets
January	2024	Confirmation of the progress of the plan to achieve numerical materiality goals for FY2023
February	2024	Discussions on proposed TCFD disclosures
March	2024	Final confirmation of proposed TCFD disclosures

Risk Management

The Company-wide Risk Management System Committee, chaired by Nippon Fine Chemical's Representative Director, President and composed of managers, is the highest decision-making body in our risk management system (RMS). The committee discusses basic risk management policies, plans, implementation, RMS improvements, and other general RMS-related matters, with final decisions on such matters being made by the chairman based on the outcome of such discussions. The Company-wide RMS Committee identifies critical risks using a risk map based on the "impact on business activities" and "frequency of occurrence" evaluation axes. Risk management for sustainability-related matters is referred to the Sustainability Promotion Committee, which identifies materialities based on the degree of "importance to stakeholders" and the degree of "importance to our group". The Sustainability Promotion Committee has identified climate-related risks as one of the environmental materialities, and identifies and evaluates risks and opportunities based on the following evaluation axes to determine the level of

materiality. The Committee formulates measures and creates promotion action plans for items that are assessed as having a significant impact on risks and opportunities. The Committee also manages the progress of the formulated plans and activities and reports such progress to the Management Meeting. The Management Meeting deliberates management plans and business strategies based on the state of current initiatives and other factors, and such plans and strategies are then approved by the Board of Directors.

In FY2024, we changed from a system in which the Company-wide RMS Committee holds discussions and makes decisions on risk management, to a system in which the RMS Promotion Committee holds discussions and the Sustainable Management Committee, chaired by Nippon Fine Chemical's Representative Director, President, deliberates and the Board of Directors approves decisions on risk management. In addition, in FY2024, the role of the Management Meeting in sustainability promotion activities was transferred to the Sustainable Management Committee.

● Assessment Axis for Climate-Related Risks and Opportunities

- 1 Identify risks and opportunities related to climate change that may affect the Group with reference to the TCFD Final Report
- 2 Evaluate identified risks and opportunities from the perspective of their impact on the Group's business activities, customers, suppliers, etc., and the likelihood of their occurrence
- 3 Evaluate the impact of each item from both a qualitative and a quantitative perspective using scenario analysis to determine relative importance

Strategies

With regard to the impact of climate change on Nippon Fine Chemical and ARBOS, a Group company involved in the environmental hygiene product business, we set 2030 and 2050 as the time frame for our considerations, and analyzed scenarios for "risks and opportunities associated with the transition to a low-carbon economy" and "risks and opportunities associated with the physical impact of climate change" in a "1.5°C world" in which climate change measures have progressed and the Paris Agreement targets have been realized and in a "4°C world" in which no new climate change measures are taken and greenhouse gases have increased.

We found that under the 1.5°C scenario, there will be significant business risks due to policies and regulations aimed at emission reductions, such as carbon taxes and concerns about the procurement of naturally derived raw materials, while there will also be opportunities to sell materials for perovskite solar cells. We found that under the 4°C scenario, there will be significant business risk concerns regarding the procurement of naturally

derived raw materials, while there will also be opportunities to sell materials for perovskite solar cells, as in the 1.5°C scenario. Although the scenario analysis results for FY2023 show that the risk of the impact of crude oil price hikes on raw material prices has reduced in size, we will continue to consider the impact on our business and closely monitor the trend.

Nippon Fine Chemical and ARBOS have reduced Scope 2 by switching all purchased electricity to renewable energy in 2022 and April 2023, respectively. In the future, we will promote Scope 2 reductions by expanding and continuing this switch at other Group companies. The Nippon Fine Chemical Group will also consider Scope 1 reductions by switching to fuels with lower CO₂ emission coefficients, upgrading aging facilities to save energy, replacing company vehicles with EVs, and reviewing manufacturing processes.

● Main Scenarios Referenced







	1.5°C Scenario	4°C Scenario
Transition-related Risks and Opportunities	International Energy Agency (IEA) IEA NZE2050	International Energy Agency (IEA) IEA STEPS*
Physical impact-related Risks and Opportunities	Intergovernmental Panel on Climate Change (IPCC) SSP1-1.9	Intergovernmental Panel on Climate Change (IPCC) SSP5-8.5

*Substitute due to there being no 4°C scenario

Results of 1.5°C and 4°C Scenario Analysis (affected items)

		Risk/Opportunity Category	1.5°C World	4°C World
Transition Risks and Opportunities	Policies / Regulations	Carbon price and carbon tax	Carbon taxes will be introduced to achieve the 1.5°C target, carbon prices will rise, and global emission credits and other initiatives will expand. Procurement, manufacturing, sales, and transportation costs will increase as a result.	Efforts related to carbon pricing will not have progressed and remain largely unchanged from the current situation.
		Carbon emission targets/policies in each country (Introduction of plastics regulations) (Palm oil production volume and price)	<ul style="list-style-type: none"> - Global trend of imposing tax on virgin plastics will continue. As a result, the use of additional recycled materials will be necessary and research and development costs, procurement, and manufacturing costs will increase. The development of resource-saving containers, the use of bioplastics as an alternative raw material, and recycling efforts will also increase. - Global regulations on palm plantation development will be strengthened, palm oil supplies will be restricted, supply-demand balance will be tighten, and procurement price will rise. 	<ul style="list-style-type: none"> - Plastic taxation is not introduced and the utilization rate of recycled plastic does not increase. - Palm oil supplies from newly developing countries will grow and supply and demand is stable.
	Industry / Market	Fluctuations in the price of raw materials (Petrochemical raw materials)	Oil prices will decline in both 2030 and 2050 as a result of a significant drop in demand due to low-carbon technology innovation and policies to reduce carbon dioxide emissions.	While oil demand will increase mainly in the petrochemical, aviation, and shipping sectors due to the lack of restrictions on fossil fuels, overall the demand for oil will peak before 2030 and gradually decline thereafter, largely due to the fall in demand in the road transportation sector following the shift to electric vehicles.
		Development of new products and services through R&D and innovation (Expansion of earnings through development of solar cells and other raw materials)	Globally, solar power generation facility capacity is expected to be 5.8 times the current level in 2030 and 25.4 times in 2050, which will increase the demand for raw materials.	Globally, solar power generation facility capacity is expected to be 3.9 times the current level in 2030 and 15.5 times in 2050, which will increase the demand for raw materials.
Physical Risks and Opportunities	Chronic	Increase in average temperature/changes in precipitation and temperature patterns (Wool grease production volume and price) (Rapeseed oil production and price)	Reduced demand for wool and raw wool production as a result of rising average temperatures. As a result, the amount of wool grease available for purchase will decrease and procurement prices will increase.	Reduced demand for wool as a result of rising average temperatures. The production of raw wool will fall due to factors such as feed shortages and higher feed prices caused by frequent and prolonged droughts, and lower sheep birth rates due to the heat. As a result, the amount of wool grease available for purchase will decrease significantly and procurement prices will increase.
			There will be no change in the supply of rapeseed oil due to higher average temperatures, and procurement prices will remain virtually unchanged.	There will be a decrease in rapeseed oil production and lower labor productivity due to higher average temperature and procurement prices will increase.





Addressing Climate Change Risks and Opportunities

	Financial impact	Risks	Opportunities
Small	Less than 100 million yen		
Medium	100 million yen to less than 500 million yen		
Large	500 million yen or more		

	Period	Reason for Adoption
Medium-term	Until FY2030	Measure in line with the FY2030 38% reduction target for carbon dioxide emissions.
Long-term	Until FY2050	Measure in line with FY2050 carbon neutrality goal.

F: Functional Products Business

E: Environmental Hygiene Products Business

Scenario	Risk/Opportunity	Target Business	Impact on Business	Financial impact	Countermeasures	Period
1.5°C	Carbon tax and carbon price	E/F	The introduction of a carbon tax may increase carbon and electricity prices, expand emission credits and other initiatives globally, and increase response costs in terms of procurement, manufacturing, sales, and transportation.	 Large	<ul style="list-style-type: none"> - Nippon Fine Chemical in 2022 and ARBOS in April 2023 reduced their carbon dioxide emissions by switching all purchased electricity to renewable energy. - Reduce carbon dioxide emissions by switching boiler fuel from heavy oil to city gas. - Systematically replace lights with LED lighting. 	Already implemented
	Carbon emission targets/policies in each country	E	Taxes on virgin plastics may activate the use of recycled plastics, bioplastics, and resource-saving containers, and recycling efforts and increase research and development, procurement and manufacturing costs.		<ul style="list-style-type: none"> - Promote the switch to renewable energy sources for purchased electricity at Group companies. - Use a carbon neutral natural gas or e-methane heat source. - Introduce heat source equipment that uses energy that does not emit carbon dioxide. - Promote energy conservation by upgrading aging facilities. - Introduce carbon dioxide capture and separation technology. - Improve product production, existing product production processes and develop new products by introducing flow reactors and using enzymes. - Reduce carbon dioxide emissions by consolidating suppliers and sales destinations. - Reduce carbon dioxide emissions by replacing company vehicles with EVs, etc. 	Long-term
1.5°C 4.0°C	Development of new products and services through R&D and innovation	F	Demand for raw materials may increase following an increase in global solar power generation facility capacity.	 Large	<ul style="list-style-type: none"> - Develop materials for perovskite solar cells and establish production and sales expansion systems. 	Medium-term
	Increase in average temperature/changes in precipitation and temperature patterns	F	Reduced demand for wool as a result of rising average temperatures. The production of raw wool will fall due to factors such as feed shortages and higher feed prices caused by frequent and prolonged droughts, and lower sheep birth rates due to the heat. As a result, the amount of wool grease available for purchase will decrease and procurement prices may increase.	 Large	<ul style="list-style-type: none"> - Consider using algae-derived oils and fats and unused biomass. - Expand recycling of by-products of products. - Reduce the amount of wool grease that needs to be purchased by reducing the quantity of product sold. 	Long-term
4.0°C		F	A decrease in production and labor productivity could result in higher rapeseed oil prices.	 Medium	<ul style="list-style-type: none"> - Consider using algae-derived oils and fats and unused biomass. - Multiple supply sources. 	Long-term

● Develop materials for perovskite solar cells

The films for perovskite solar cells, which are expected to form the next generation of solar cells and which are currently being developed, can be manufactured at low cost. In addition, their lightweight and flexible nature enables them to be installed in places where conventional solar cells cannot. Moreover, since power can be generated not only outdoors but also using indoor light, they are expected to be used in a wide variety of applications.

Nippon Fine Chemical is working on the development and practical use of Spirokite™-NS and other materials used as novel organic hole transport materials that offer high performance for perovskite solar cells, the most promising new renewable energy source.

Indicators and Targets

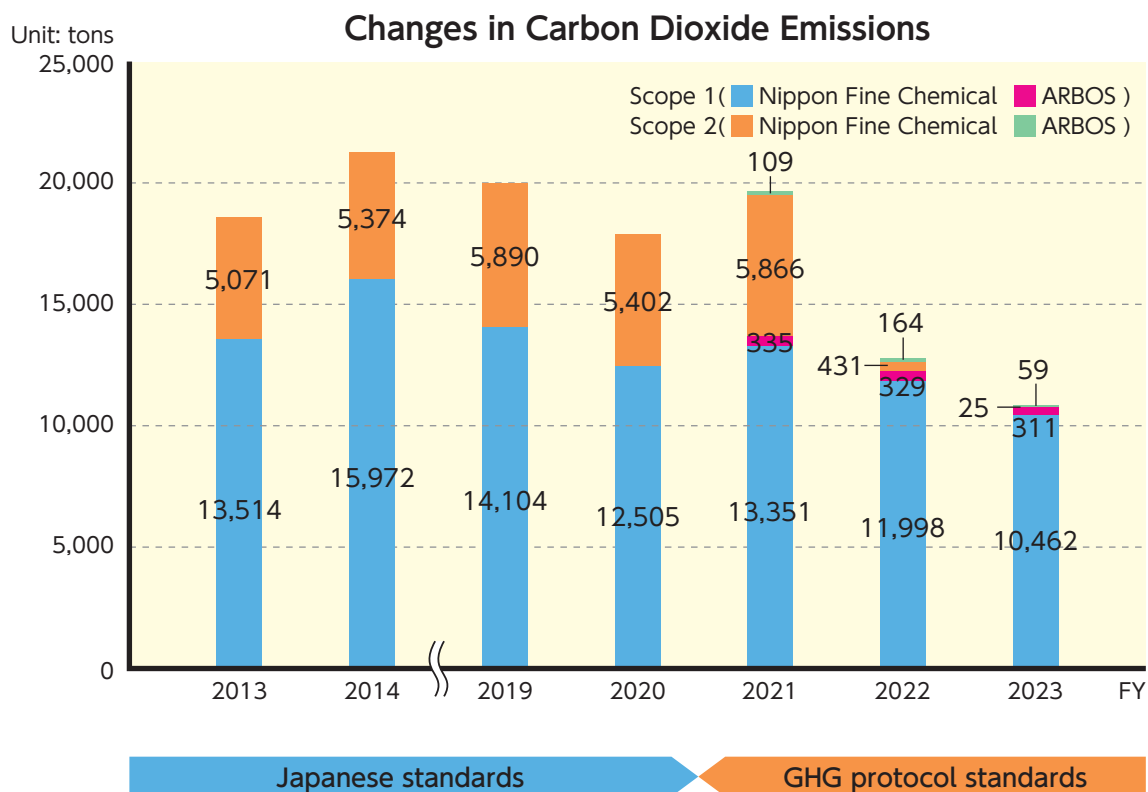
The greenhouse gas emitted by the Nippon Fine Chemical Group is mostly energy-derived carbon dioxide. In October 2021, the Japanese government published a global warming countermeasures plan which called for a 46% reduction in Japan's overall GHG emissions by FY2030 compared to FY2013 levels. Within this overall goal, the industrial sector's target is a 38% reduction in energy-derived carbon dioxide. Nippon Fine Chemical has therefore set a target with regard to Scope 1 and 2* of reducing our carbon dioxide emissions by 38% in FY2030 compared to FY2013 level by FY2030. We will also work to achieve carbon neutrality by 2050. In addition, the state of achievement of materialities, including the reduction of carbon dioxide emissions, is reflected in performance-linked remuneration paid to directors and corporate officers.

Despite including Group company ARBOS (environmental hygiene products business) in our carbon dioxide emission calculations from FY2021, we have not changed our carbon dioxide emissions reduction target for FY2030.

Nippon Fine Chemical and ARBOS have reduced Scope 2 by

switching all purchased electricity to renewable energy in 2022 and 2023, respectively. In the future, we will consider switching to renewable energy sources at other Group companies as well. For Scope 1, we also reduced carbon dioxide emissions by switching boiler fuel from heavy oil to city gas.

In addition, in FY2023 we began Scope 3* calculations in order to reduce carbon dioxide emissions throughout our supply chain. Scope 3 (categories 1 to 8) emissions at Nippon Fine Chemical and ARBOS totaled 93 thousand tons, with category 1 accounting for the majority (85%) of Scope 3 emissions.



(Note) - Japanese standards: calculated based on Act on the Rational Use of Energy and Act on Promotion of Global Warming Countermeasures

- GHG emissions from FY2021 are calculated based on GHG protocol standards

*Scope 1: Direct GHG emissions from an operator's own fuel combustion

Scope 2: Indirect GHG emissions from the use of electricity and heat supplied by other companies

Scope 3: Indirect emissions not included in Scope 1 and Scope 2
(emissions by other companies related to the company's activities)

● Scope 3 emissions in FY2023

*Emissions are the total for both Nippon Fine Chemical and ARBOS.

Category		Definition	Emissions (t-CO ₂ e)*	Emission percentage (%)
1	Purchased goods and services	Emissions from activities leading up to the production of raw materials, parts, containers and packaging, etc.	78,548	85
2	Construction and building of capital goods	Emissions from the construction and manufacture of our own capital goods	8,087	9
3	Energy and energy-related activities not included in Scope 1 and 2	Emissions associated with upstream processes of fuel procured (mining, refining, etc.) Emissions associated with upstream processes of electricity procured (mining, refining, etc. of fuels used in power generation)	2,083	2
4	Transportation, distribution (upstream)	(1) Emissions associated with logistics (transportation, loading, and storage) from suppliers of goods and services purchased in the reporting year to the company (2) Emissions associated with logistics services other than (1) purchased in the reporting year (transportation, loading, and storage) (emissions associated with logistics that the company pays for)	2,485	3
5	Waste generated in operations	Emissions associated with transportation and treatment of waste generated by the company	653	<1
6	Business travel	Emissions associated with employees' business travel	270	<1
7	Employees commuting	Emissions associated with employee travel to and from work	688	<1
8	Leased assets (upstream)	Emissions associated with the operation of leased assets leased by the company (excluded due to being calculated in Scope 1 and 2)	-	-
Total			92,814	

【Calculation method】

Calculated based on the GHG Protocol and the Ministry of the Environment and Ministry of Economy, Trade and Industry's Emission Intensity Database for Calculating Greenhouse Gas Emissions of Organization in their Supply Chains (Ver 3.3).