



**NIPPON SANSO HOLDINGS**

# Sustainability Data Book

**Fiscal Year Ended 2020**

(Data aggregation period: April 1 to March 31 of each fiscal year; or as of March 31)

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## Environment

	Unit	FYE2018	FYE2019	FYE2020
<b>Greenhouse Gas (GHG) Emissions</b>				
GHG Emissions Scope 1 <input checked="" type="checkbox"/>	Thousands of tonnes CO <sub>2</sub> e	19	14	<b>1,061</b>
GHG Emissions Scope 2 <input checked="" type="checkbox"/>	Thousands of tonnes CO <sub>2</sub> e	3,838	4,056	<b>4,747</b>
GHG Emissions Scope 3 –Total for the Following Categories <input checked="" type="checkbox"/>	Thousands of tonnes CO <sub>2</sub> e	3,671	3,634	<b>3,662</b>
Category 1 Purchased goods and services	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>883</b>
Category 2 Capital goods	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>60</b>
Category 3 Fuel- and energy-related activities not included in Scope 1 and 2	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>276</b>
Category 4 Upstream transportation and distribution (Including transportation services whose cost is borne by the Company)	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>40</b>
Category 5 Waste generated in operations	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>N/A</b>
Category 6 Business travel	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>1</b>
Category 7 Employee commuting	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>3</b>
Category 8 Upstream leased assets	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>N/A</b>
Category 9 Downstream transportation and distribution	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>N/A</b>
Category 10 Processing of sold products	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>N/A</b>
Category 11 Use of sold products	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>1,583</b>
Category 12 End-of-life treatment of sold products	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>N/A</b>
Category 13 Downstream leased assets	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>N/A</b>
Category 14 Franchises	Thousands of tonnes CO <sub>2</sub> e	—	—	<b>N/A</b>
Category 15 Investments	Thousands of tonnes CO <sub>2</sub> e			<b>816</b>

Reporting boundary: For Scope 1 and Scope 2 emissions, Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan and principal consolidated subsidiaries overseas. For a description of the reporting boundary for Scope 3, please see pages 8-9.

Scope 1 emissions: Direct emissions occurring from sources owned or controlled by the company

Scope 2 emissions: Indirect emissions from the use of electricity, steam, and heat

Scope 3 emissions: Indirect emissions other than Scope 2 emissions

GHG emissions in Japan are calculated using emission factors specified in Japan's Act on Promotion of Global Warming Countermeasures. For GHG emissions overseas, Scope 1 emissions are calculated using emission factors set forth in Japan's Act on Promotion of Global Warming Countermeasures, while Scope 2 emissions are calculated using country-specific emission factors published by the International Energy Agency (IEA). For information about the methods for calculation of Scope 3 emissions, please see pages 8-9.

	Unit	FYE2018	FYE2019	FYE2020
<b>Contributions to Environmental Protection through Products</b>				
Greenhouse Gas Emission Reduction Contribution <input checked="" type="checkbox"/>	Thousands of tonnes CO <sub>2</sub> e	1,734	1,779	<b>2,373</b>

Reporting boundary: Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan  
Please see page 10 for details about the calculation methods.

<b>Energy Usage</b>				
Energy Consumption <input checked="" type="checkbox"/>	Terajoules	67,613	72,014	<b>109,512</b>
Electric power	Terajoules	66,875	70,890	<b>97,483</b>
Fuels	Terajoules	398	418	<b>11,378</b>
Heat	Terajoules	340	706	<b>651</b>

Reporting boundary: Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan, and principal consolidated subsidiaries overseas  
The energy of the consumed fuels are calculated based on the gross calorific values specified in Japan's Act on the Rational Use of Energy. Purchased electricity and purchased steam are converted into primary energy amounts.

<b>Environmental Impact</b>				
NOx emissions <input checked="" type="checkbox"/>	Tonnes	—	3.0	<b>3.2</b>
SOx emissions <input checked="" type="checkbox"/>	Tonnes	—	1.0	<b>1.4</b>
Particulate emissions <input checked="" type="checkbox"/>	Tonnes	—	1.0	<b>0.1</b>
VOC emissions <input checked="" type="checkbox"/>	Tonnes	14	10	<b>10</b>
Releases of substances designated under the Pollutant Release and Transfer Register (PRTR) <input checked="" type="checkbox"/>	Tonnes	29	29	<b>19</b>

Reporting boundary: Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan

<b>Water Usage</b>				
Fresh Water Withdrawn <input checked="" type="checkbox"/>	Millions of m <sup>3</sup>	10.92	13.62	<b>30.02</b>
Breakdown of sources of fresh water withdrawn	Water supply from local government	Millions of m <sup>3</sup>	—	<b>14.96</b>
	Municipal water	Millions of m <sup>3</sup>	—	<b>4.29</b>
	Industrial water	Millions of m <sup>3</sup>	—	<b>10.67</b>
	Groundwater	Millions of m <sup>3</sup>	—	<b>2.76</b>
	Surface water	Millions of m <sup>3</sup>	—	<b>12.30</b>

Reporting boundary: Gas production facilities of Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan, and principal consolidated subsidiaries overseas  
In FYE2020, consolidated subsidiaries in Japan with facilities specified under the Water Pollution Prevention Act were added to the reporting boundary.

<b>Waste</b>				
Waste generated*1 <input checked="" type="checkbox"/>	Tonnes	2,910	3,023	<b>3,762</b>
Waste disposed of as landfill*2 <input checked="" type="checkbox"/>	Tonnes	379	362	<b>284</b>
Hazardous waste generated*3 <input checked="" type="checkbox"/>	Tonnes	240	156	<b>197</b>
Waste recycled	Tonnes	1,412	1,695	<b>2,381</b>

Reporting boundary: Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan

\*1 Includes valuable materials. \*2 Includes residues after intermediate processing outside the Group. \*3 Total of specially controlled industrial waste

<b>Environmental Accounting</b>				
Environmental protection costs				
Investments	Millions of yen	11,740	9,655	<b>1,351</b>
Expenses	Millions of yen	732	844	<b>1,033</b>
Economic benefits associated with environmental conservation activities	Millions of yen	1,375	15	<b>1,905</b>

Reporting boundary: Taiyo Nippon Sanso Corporation and four of its consolidated subsidiaries in Japan (Japan Fine Products Co., Ltd., Taiyo Nippon Sanso Engineering Corporation, Nissan Unyu K.K., and Thermos K.K.)

From FYE2020, the figures for chemical oxygen demand (COD) emissions, nitrogen emissions in wastewater and phosphorus emissions have been omitted from disclosure since the amounts of these emissions have been immaterial. The Group uses water primarily for indirect cooling, and its impacts on water quality is therefore not large. Taiyo Nippon Sanso Corporation and its domestic subsidiaries have five business sites that are subject to restrictions on the concentration of COD, nitrogen, and phosphorous emissions in wastewater. The total amounts of COD, nitrogen, and phosphorous emissions for all five sites amount to less than one tonne each.

## Society

	Unit	FYE2018	FYE2019	FYE2020
<b>Employees (Consolidated)</b>				
Employees (Consolidated)	Number of individuals	16,746	19,229	<b>19,719</b>
Japan	Number of individuals	6,172	6,461	<b>6,550</b>
Overseas	Number of individuals	10,574	12,768	<b>13,169</b>

<b>Employees</b>				
Employees (Registered employees of Taiyo Nippon Sanso Corporation) ☑	Number of individuals	1,940	1,983	<b>2,024</b>
Employees working overseas	Number of individuals	79	76	<b>64</b>
Employees working overseas as a percentage of the total number of employees	%	4.1	3.8	<b>3.2</b>
<b>Employees by gender</b>				
Male ☑	Number of individuals	1,746	1,758	<b>1,775</b>
Female ☑	Number of individuals	194	225	<b>249</b>
<b>Employees by age group</b>				
20s and below ☑	Number of individuals	330	355	<b>383</b>
30s ☑	Number of individuals	379	393	<b>398</b>
40s ☑	Number of individuals	664	631	<b>599</b>
50s and above ☑	Number of individuals	567	604	<b>644</b>
<b>Years of consecutive service</b>				
Overall average	Years	18.5	18.1	<b>17.9</b>
Men	Years	18.8	18.6	<b>18.5</b>
Women	Years	15.5	14.4	<b>13.8</b>
Average age ☑	Years	43.5	42.6	<b>41.9</b>
New hires ☑	Number of individuals	90	108	<b>109</b>
Employee training hours	Total hours per year	—	5,175	<b>5,547</b>
Employees who left the Company, including mandatory retirees; excluding transfers to Group companies ☑	Number of individuals	44	55	<b>63</b>
Unions members ☑	Number of individuals	1,048	1,106	<b>1,146</b>
Union members as a percentage of the total number of employees ☑	%	54.0	55.8	<b>56.6</b>
Layoffs*1 ☑	Number of individuals	0	0	<b>0</b>

\*1 Employees who left at the company's behest (dismissal)

<b>Diversity</b>				
Female employees as a percentage of the total number of employees ☑	%	10.0	11.3	<b>12.3</b>
Female managers as a percentage of the total managerial positions ☑	%	1.5	1.4	<b>1.5</b>
Employees with disabilities as a percentage of total labor force (as of June 1 each year) ☑	%	2.0	2.2	<b>2.3</b>
Number of employees reemployed after retirement ☑	Number of individuals	51	57	<b>64</b>

Work-Life Balance				
Employees using childcare leave systems ☑	Number of individuals	7	7	<b>7</b>
Men ☑	Number of individuals	0	2	<b>0</b>
Women ☑	Number of individuals	7	5	<b>7</b>
Employees using nursing care leave or long-term nursing care leave ☑	Number of individuals	0	0	<b>0</b>
Usage rate for annual paid leave*2 ☑	%	60.0	61.3	<b>62.5</b>

\*2 The denominator is the number of days newly granted and the numerator is the number of days used in the reporting fiscal year. The denominator does not include the number of days carried over from the previous fiscal year

Others				
Employees using volunteer leave system ☑	Number of individuals	0	4	<b>0</b>
Expenditures on social contribution initiatives	Thousands of yen	57,623	40,396	<b>49,472</b>

Reporting boundary: Indicators other than Employees (Consolidated) are for employees of Taiyo Nippon Sanso Corporation (not including workers in fixed-term employment, except for the number of employees reemployed after retirement)

Occupational Health and Safety				
Frequency rate of occupational accidents resulting in lost workdays (Number of injuries / fatalities due to occupational accidents per million work hours)				
Japan ☑	—	0.45	0.71	<b>0.70</b>
Overseas ☑	—	4.21	3.20	<b>2.16</b>

Reporting boundary: Taiyo Nippon Sanso Corporation and its principal consolidated subsidiaries in Japan that have production divisions, and principal production subsidiaries overseas (excluding overseas Thermos group)

Overseas performance in FYE2019 includes data for Europe for the three months ended March 31, 2019.

## Reporting boundary

### Principal Consolidated Subsidiaries Overseas

Matheson Tri-Gas, Inc.; Leeden National Oxygen Ltd.; Ingasco, Inc.; Taiyo Nippon Sanso Philippines, Inc.; Taiyo Nippon Sanso Clark Inc.; Nippon Sanso (Thailand) Co., Ltd.; Taiyo Gases Co., Ltd.; Vietnam Japan Gas Joint Stock Company; Taiyo Nippon Sanso India Pvt. Ltd.; Shanghai Taiyo Nippon Sanso Gas Co., Ltd.; Suzhou Taiyo Nippon Sanso Gas Co., Ltd.; Dalian Chanxhing Island Taiyo Nippon Sanso Gas Co., Ltd.; Dalian Taiyo Nippon Sanso Gas Co., Ltd.; Yangzhou Taiyo Nippon Sanso Gas Co., Ltd.; Taiyo Nippon Sanso Taiwan, Inc.; Taiyo Nippon Sanso Engineering Taiwan, Inc.; Fy Yang Gas Co., Ltd.; Supagas Pty Ltd., Nippon Sanso Myanmar Co., Ltd.

For environmental data, the HyCO plants of Matheson Tri-Gas, Inc. and the plants installed air separation units of Nippon Gases Euro-Holding S.L.U. were added from FYE2020.

## Governance

	Unit	FYE2018	FYE2019	FYE2020
<b>Management Configuration</b>				
Directors	Number of individuals	7	6	<b>9</b>
Inside directors	Number of individuals	5	4	<b>7</b>
Independent outside directors	Number of individuals	2	2	<b>2</b>
Directors serving concurrently as executive officers	Number of individuals	2	3	<b>4</b>
Percentage of directors serving concurrently as executive officers	%	28.6	50.0	<b>44.4</b>
Independent outside directors as a percentage of total Board of Directors' members	%	28.6	33.3	<b>22.2</b>
Female directors as a percentage of total Board of Directors' members	%	0.0	0.0	<b>0.0</b>
Term of appointment	Years	1	1	<b>1</b>
Frequency of Board of Directors' meetings	Times	11	15	<b>12</b>
Attendance at Board of Directors' meetings	%	98.9	97.8	<b>99.1</b>
Attendance of independent outside directors at Board of Directors' meetings	%	95.5	96.7	<b>100.0</b>
Number of directors attending less than 75% of Board of Directors' meetings	Number of individuals	0	0	<b>0</b>
Audit & Supervisory Board members	Number of individuals	4	4	<b>4</b>
Inside Audit & Supervisory Board members	Number of individuals	1	1	<b>1</b>
Independent outside Audit & Supervisory Board members	Number of individuals	3	3	<b>3</b>
Independent outside Audit & Supervisory Board members as a percentage of total Audit & Supervisory Board members	%	75.0	75.0	<b>75.0</b>
Female Audit & Supervisory Board members as a percentage of total Audit & Supervisory Board members	%	0.0	0.0	<b>0.0</b>
Frequency of Audit & Supervisory Board meetings	Times	13	18	<b>16</b>
Attendance at Audit & Supervisory Board meetings	%	100.0	100.0	<b>92.2</b>
Attendance of independent outside Audit & Supervisory Board members at Audit & Supervisory Board meetings	%	100.0	100.0	<b>89.6</b>
Number of Audit & Supervisory Board members attending less than 75% of Audit & Supervisory Board meetings	Number of individuals	0	0	<b>1</b>
Average age of directors and Audit & Supervisory Board members	Years	67.1	65.5	<b>64.3</b>
Number of executive officers	Number of individuals	25	23	<b>24</b>
Female executive officers as a percentage of total executive officers	%	0.0	0.0	<b>0.0</b>

Activities of Committees				
Advisory Committee on Appointments and Remuneration				
Members	Number of individuals	3	3	<b>3</b>
Inside directors	Number of individuals	1	1	<b>1</b>
Independent outside directors	Number of individuals	2	2	<b>2</b>
Frequency of meetings	Times	6	8	<b>11</b>
Attendance	%	100.0	100.0	<b>100.0</b>
Management Committee				
Members	Number of individuals	16	17	<b>17</b>
Frequency of meetings	Times	16	21	<b>16</b>
Attendance	%	99.6	99.1	<b>97.1</b>
KAITEKI Promotion Committee				
Members	Number of individuals	16	16	<b>16</b>
Frequency of meetings	Times	2	2	<b>2</b>
Attendance	%	100.0	100.0	<b>100.0</b>
Technological Development Committee				
Members	Number of individuals	16	16	<b>14</b>
Frequency of meetings	Times	2	2	<b>2</b>
Attendance	%	100.0	100.0	<b>92.6</b>
Investment Committee				
Members	Number of individuals	11	12	<b>12</b>
Frequency of meetings	Times	2	2	<b>2</b>
Attendance	%	100.0	95.5	<b>100.0</b>
Compliance Committee				
Members	Number of individuals	33	33	<b>33</b>
Frequency of meetings	Times	2	2	<b>2</b>
Attendance	%	100.0	100.0	<b>100.0</b>
Global Compliance Committee				
Members	Number of individuals	14	20	<b>20</b>
Frequency of meetings	Times	1	1	<b>0</b>
Attendance	%	100.0	100.0	—
Risk Assessment Committee				
Members	Number of individuals	18	21	<b>21</b>
Frequency of meetings	Times	1	1	<b>1</b>
Attendance	%	100.0	100.0	<b>100.0</b>
Technological Risk Management Committee				
Members	Number of individuals	19	19	<b>19</b>
Frequency of meetings	Times	2	2	<b>2</b>
Attendance	%	97.6	100.0	<b>100.0</b>

Remuneration for Officers				
Remuneration for directors (excluding outside directors)				
Total	Millions of yen	331	249	<b>255</b>
Basic remuneration	Millions of yen	331	151	<b>162</b>
Performance-linked bonuses	Millions of yen	—	97	<b>93</b>
Remuneration for Audit & Supervisory Board members (excluding independent outside members)				
Total	Millions of yen	25	25	<b>25</b>
Basic remuneration	Millions of yen	25	25	<b>25</b>
Remuneration for independent outside directors				
Total	Millions of yen	102	102	<b>102</b>
Basic remuneration	Millions of yen	102	102	<b>102</b>
Remuneration for independent auditors				
Total	Millions of yen	162	212	<b>198</b>
Remuneration for audit services	Millions of yen	161	209	<b>195</b>
Other remuneration for independent auditors	Millions of yen	1	3	<b>3</b>
* In FYE2018, basic remuneration for directors included performance-linked bonuses.				
Others				
Anti-takeover measures	—	Not adopted	Not adopted	<b>Not adopted</b>
Code of ethics	—	Adopted	Adopted	<b>Adopted</b>
Policy on transparency of tax affairs	—	Adopted (Internal)	Adopted (Internal)	<b>Adopted (Internal)</b>
Taiyo Nippon Sanso Group Code of Conduct, Code of Conduct Guidebook (rules for the prevention of corruption, bribery, conflict of interest transactions and leaks of trade secrets, etc.)	—	Adopted (Internal)	Adopted (Internal)	<b>Adopted (Internal)</b>
Corporate political contributions	Yen	0	0	<b>0</b>
Violations of rules for the prevention of corruption	Cases	0	0	<b>0</b>
Monetary penalties incurred as a result of violations of guidelines for the prevention of corruption	Yen	0	0	<b>0</b>

## Intellectual Property and Research and Development

	Unit	FYE2018	FYE2019	FYE2020
Intellectual Property				
Registered patents				
Total	Patents	1,094	1,147	<b>1,255</b>
Japan	Patents	738	774	<b>802</b>
Overseas	Patents	356	373	<b>453</b>
Research and Development				
Research and development expenses				
Total	Millions of yen	3,255	3,494	<b>3,389</b>
Gas Business in Japan	Millions of yen	2,612	2,846	<b>2,691</b>
Gas Business in the United States	Millions of yen	593	614	<b>658</b>
Thermos Business	Millions of yen	48	34	<b>39</b>

Intellectual property is the number of registered patents held by Taiyo Nippon Sanso Corporation as of December 31 each year.



## Calculation Methods for Scope 3 GHG Emissions

### Referenced Guidelines

Our Scope 3 GHG emissions are calculated based on the Corporate Value Chain (Scope 3) Accounting and Reporting Standard issued by the GHG Protocol. For emission factors, we used the emission factor database Ver. 3 provided in the Green Value Chain Platform, the Inventory Database for Environmental Analysis (IDEA v2) for supply-chain GHG emissions accounting, and information included in MiLCA Ver. 2, a life-cycle assessment software developed by the Japan Environmental Management Association for Industry.

### Reporting Boundary

Unless otherwise specified, the data covers Taiyo Nippon Sanso Corporation and its domestic consolidated subsidiaries.

### Calculation Method by Category

<b>Category 1</b> Purchased goods and services	Calculated by multiplying the amounts of products and services in physical or monetary units purchased by Taiyo Nippon Sanso Corporation from suppliers other than its consolidated subsidiaries by the respective emission factor for each type of product or service. Data for this category is collected only for Taiyo Nippon Sanso Corporation.
<b>Category 2</b> Capital goods	Calculated by multiplying the amounts of capital investment during each reporting fiscal year by an emission factor per price of capital goods.
<b>Category 3</b> Fuel- and energy-related activities not included in Scope 1 and 2	<p>This category includes emissions associated with the extraction, production, and transportation of purchased fuels and those consumed in the production of electricity and steam that are purchased by the Group.</p> <p>Fuels: Calculated by multiplying the amount purchased during the fiscal year by an emission factor for each fuel type.</p> <p>Electricity and steam: Calculated by multiplying the amount purchased from outside the Group by the upstream emission factor for each purchased energy reflecting electricity transmission loss.</p>
<b>Category 4</b> Upstream transportation and distribution (Including distribution services whose cost is borne by the Group)	<p>Calculated by subtracting the CO<sub>2</sub> emissions from logistics subsidiaries, which are included in Scope 1 emissions, from the CO<sub>2</sub> emissions reported for Taiyo Nippon Sanso Corporation and Nippon Ekitan Corporation as specified shippers in accordance with the Act on Promotion of Global Warming Countermeasures.</p> <p>CO<sub>2</sub> emissions related to transportation and distribution of products for which Taiyo Nippon Sanso Corporation and Nippon Ekitan Corporation bear the transportation costs are included in this category.</p>
<b>Category 5</b> Waste generated in operations	The Taiyo Nippon Sanso Group's primary products are gases (oxygen, nitrogen, and argon), which are produced from air as a raw material through cryogenic separation. Therefore, almost no waste is generated in the manufacturing process. As the volume of waste generated from other products' production sites is also negligible, emissions in this category are not calculated.
<b>Category 6</b> Business travel	Calculated by multiplying the number of employees of Taiyo Nippon Sanso Corporation and its domestic consolidated subsidiaries by the emission factor (0.13 tonnes of CO <sub>2</sub> /person/ year).
<b>Category 7</b> Employee commuting	<p>Taiyo Nippon Sanso Corporation Employees: For train commuters, the annual payment for commuter passes is multiplied by an emission factor per transportation expense. For car commuters, the round trip distance is multiplied by the annual number of commuting days and an emission factor per person-kilometer for passenger car.</p> <p>Employees of domestic consolidated subsidiaries: The number of employees is multiplied by the annual number of commuting days, and multiplied by the emission factor per commuting day.</p>

<b>Category 8</b> Upstream leased assets	Since the amount of applicable lease assets is negligible, emissions in this category are not calculated
<b>Category 9</b> Downstream transportation and distribution	The emissions associated with the transportation of sold products whose cost is borne by Taiyo Nippon Sanso Corporation and Nippon Ekitan Corporation fall within category 4 as the Group basically bears the cost of transporting products.
<b>Category 10</b> Processing of sold products	The Taiyo Nippon Sanso Group's main product group is gas, and since it is difficult to rationally calculate the GHG emissions associated with the processing of these products, the emissions are not calculated.
<b>Category 11</b> Use of sold products	The amount of CO <sub>2</sub> emissions generated from the use of propane gas (LPG), liquefied carbon dioxide gas, and dry ice, and from use of electricity for the operation of its air separation units during the service life, which were sold to customers outside of the Taiyo Nippon Sanso Group.
<b>Category 12</b> End-of-life treatment of sold products	The Taiyo Nippon Sanso Group's primary products are gases (oxygen, nitrogen, argon). After use, these gases return to the atmosphere and do not become waste. Furthermore, since the gas containers are loaned, and therefore the amount of waste from sold products is negligible, emissions in this category are not calculated.
<b>Category 13</b> Downstream leased assets	Since the amount of applicable lease assets is negligible, emissions in this category are not calculated.
<b>Category 14</b> Franchises	As the Group does not have any businesses in this format, there are no emissions in this category.
<b>Category 15</b> Investments	Calculated by multiplying the emissions of each of the seven main affiliates of Taiyo Nippon Sanso Corporation in Japan by the Company's shareholding ratio (as of the fiscal year-end). The seven company's GHG emissions are based on their actual emissions in the reporting period.

## Calculation Methods for GHG Emission Reduction Contribution

Greenhouse gas (GHG) emission reduction contribution is calculated for the following products and services sold by Taiyo Nippon Sanso Corporation and its domestic consolidated subsidiaries. The calculation method per product or service is as follows. The CO<sub>2</sub> emission factor used for electricity is 0.488 tCO<sub>2</sub>/MWh.

Product or service	Calculation methods of GHG emission reduction contribution
SF <sub>6</sub> recovery service	The volume of SF <sub>6</sub> gas recovered in FYE2020 was multiplied by its global warming potential (GWP) to calculate GHG emission reduction contribution.
Combustion-type exhaust gas abatement system	An average processing capacity of 0.6 L/min for NF <sub>3</sub> gas per one combustion-type exhaust gas abatement system was assumed, and this value was multiplied by the number of such systems that were installed in FYE2019 and FYE2020, the number of operating hours per year, and the GWP of NF <sub>3</sub> to calculate the GHG emission reduction contribution. The amount of CO <sub>2</sub> emissions from fuel used in combustion equipment was deducted.
SCOPE-JET®	Based on actual observed values at two electronic furnace manufacturers who had introduced SCOPE-JET®, the electricity-saving effect per volume of jet oxygen (kWh/Nm <sup>3</sup> ) was calculated. The ratio of the number of plants that have introduced SCOPE-JET® to the total number of electric furnace manufacturing plants was multiplied by the volume of crude steel products by electric furnaces in Japan in FYE2020, and the resulting number was assumed to be the production volume of crude steel contributed by the electricity saving from SCOPE-JET®. The amount of oxygen consumed by SCOPE-JET® in the production of this crude steel, and the amount of electricity saved per volume of oxygen were multiplied by the CO <sub>2</sub> emission factor for electricity to calculate the GHG emission reduction contribution. The amount of the CO <sub>2</sub> emissions generated during the manufacture of the oxygen was deducted.
MG Shield®	The amount of SF <sub>6</sub> gas whose use was avoided through use of MG Shield® sold in FYE2020, was multiplied by the gas' GWP to calculate the GHG emission reduction contribution.
Nitrogen gas supply system for laser processing (PSA)	The annual power consumption of the Company's conventional air compressor was compared with that of the energy-saving type nitrogen gas supply system to calculate the annual electricity saving from using the energy-saving type system. The annual electricity saved was multiplied by the CO <sub>2</sub> emission factor for electricity and the cumulative number of units sold from FYE2012 to FYE2020 to calculate the GHG emission reduction contribution.
Thermos Shuttle Chef	The amount of electric power usage saved per year from using Shuttle Chef when cooking was multiplied by the CO <sub>2</sub> emission factor for electricity and the total number of units sold over the three years from FYE2018 to FYE2020 to calculate the GHG emission reduction contribution.
Hydrogen Station	The annual CO <sub>2</sub> emissions, which include emissions during the manufacture of the hydrogen, emitted by fuel cell vehicles filled with hydrogen at hydrogen stations sold or operated by the Company and operated during FYE2020 was compared with the annual CO <sub>2</sub> emissions of gasoline cars to calculate the GHG reduction contribution.

## Independent Assurance Report



### Independent Assurance Report

To the Representative Director, President CEO of Nippon Sanso Holdings Corporation

We were engaged by Nippon Sanso Holdings Corporation (the “Company”) to undertake a limited assurance engagement of the environmental and social performance indicators marked with ☒ (the “Indicators”) for the period from April 1, 2019 to March 31, 2020 included in its Sustainability Data Book Fiscal Year Ended 2020 (the “Data Book”) for the fiscal year ended March 31, 2020.

#### The Company's Responsibility

The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria (the “Company’s reporting criteria”), as described in the Data Book.

#### Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed. We conducted our engagement in accordance with the ‘International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information’ and the ‘ISAE 3410, Assurance Engagements on Greenhouse Gas Statements’ issued by the International Auditing and Assurance Standards Board. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Data Book, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than for, a reasonable assurance engagement. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing the Company’s responsible personnel to obtain an understanding of its policy for preparing the Data Book and reviewing the Company’s reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical procedures on the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company’s reporting criteria, and recalculating the Indicators.
- Visiting the Keihin Plant of JFE Sanso Center Co., Ltd. selected on the basis of a risk analysis.
- Evaluating the overall presentation of the Indicators.

#### Conclusion

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Data Book are not prepared, in all material respects, in accordance with the Company’s reporting criteria as described in the Data Book.

#### Our Independence and Quality Control

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

*KPMG AZSA Sustainability Co., Ltd.*

KPMG AZSA Sustainability Co., Ltd.

Tokyo, Japan

December 23, 2020



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