

# Fiscal 2017 Data Sheet

(Aggregation period: April 1 – March 31 of each fiscal year, and March 31 of each fiscal year)

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## Environmental Data

### Scope of data aggregation:

The data for fiscal 2015 covers the three operating companies (MCC, MTPC, and LSII) as well as TNSC and their domestic Group companies. The data for fiscal 2016 and fiscal 2017 covers these four operating companies and their domestic and overseas Group companies. (Group companies are directly-owned consolidated subsidiaries). The fiscal 2017 data coverage represents 76% of the Mitsubishi Chemical Holdings Corporation (MCHC) Group's revenue.

Indicators with this icon have been assured by KPMG AZSA Sustainability Co., Ltd. for fiscal 2017. For the Independent Assurance Report, please see page 5 in this data sheet.

		FY2015	FY2016	FY2017 (Year on year)
<b>Greenhouse gasses (GHG)*1</b>				
<input checked="" type="checkbox"/>	GHG emissions (thousand t-CO <sub>2</sub> e)*2	55,294 *3	68,639	<b>64,455</b> (94%)
<input checked="" type="checkbox"/>	Scope 1+2	12,054 *3	14,269	<b>14,815</b> (104%)
<input checked="" type="checkbox"/>	Scope 1	7,771	7,223	<b>7,470</b> (103%)
<input checked="" type="checkbox"/>	Scope 2	4,283 *3	7,046	<b>7,345</b> (104%)
<input checked="" type="checkbox"/>	Scope 3*4	43,240	54,370	<b>49,640</b> (91%)
Category 1	Purchased goods and services	9,680	17,550	<b>15,750</b> (90%)
Category 2	Capital goods	270	560	<b>610</b> (109%)
Category 3	Fuel- and energy-related activities not included in Scope 1 or Scope 2	400	1,030	<b>1,070</b> (104%)
Category 4	Upstream transportation and distribution (including distribution services whose cost was borne by the Group)	730	730	<b>900</b> (123%)
Category 5	Waste generated in operations	130	130	<b>80</b> (62%)
Category 6	Business travel	50	70	<b>80</b> (114%)
Category 7	Employee commuting	30	100	<b>100</b> (100%)
Category 8	Upstream leased assets	N/A	N/A	<b>N/A</b> (N/A)
Category 9	Downstream transportation and distribution	0	0	<b>0</b> (N/A)
Category 10	Processing of sold products	N/A	N/A	<b>N/A</b> (N/A)
Category 11	Use of sold products	21,460	22,500	<b>21,590</b> (96%)
Category 12	End-of-life treatment of sold products	8,860	9,930	<b>7,620</b> (77%)
Category 13	Downstream leased assets	N/A	N/A	<b>N/A</b> (N/A)
Category 14	Franchises	N/A	N/A	<b>N/A</b> (N/A)
Category 15	Investments	640	1,770	<b>1,840</b> (104%)

<b>Energy consumption*1</b>				
<input checked="" type="checkbox"/>	Energy consumption (GWh)*5	34,935 *3	38,950	<b>40,977</b>
	Coal (GWh)	5,398	3,567	<b>3,937</b>
	Oil (GWh)	2,845	3,389	<b>3,017</b>
	Gas (GWh)	2,945	5,130	<b>5,424</b>
	By-product gas and by-product oil (GWh)	17,666	12,486	<b>13,389</b>
	Electricity (GWh)	6,582	10,454	<b>10,981</b>
	Steam (GWh)	-501	3,924	<b>4,228</b>

\*1 Energy used to produce electricity and steam sold externally and the resulting CO<sub>2</sub> emissions were excluded from figures for fiscal 2015 and prior years (CO<sub>2</sub> emissions were excluded from Scope 2 emissions), but in conformity with the GHG protocol, they are not excluded starting in fiscal 2016.

\*2 The emission factors specified in the Act on Promotion of Global Warming Countermeasures are used for the calculation of emissions in Japan. GHG emissions that are not subject to reporting under the Act are mostly calculated based on the mass balance of chemical reactions. Overseas Scope 1 emissions are calculated with the emission factors specified in the Act on Promotion of Global Warming Countermeasures or by the IPCC, and overseas Scope 2 emissions are calculated with power company-specific emission factors or country level emission factors for electricity published by the IEA.

\*3 The fiscal 2015 results include GHG emissions of 1.65 million tons and energy consumption of 1,942 GWh by affiliate companies that are closely associated in terms of energy management, but the fiscal 2016 results and thereafter exclude GHG emissions and energy consumption of these companies.

\*4 For the calculation method for Scope 3 GHG emissions, see page 3 of this data sheet.

\*5 The unit higher heating values for fuels specified in the Act on the Rational Use of Energy or by the IPCC are used.

## Environmental Data

### Scope of data aggregation:

The data for fiscal 2015 covers the three operating companies (MCC, MTPC, and LSII) as well as TNSC and their domestic Group companies. The data for fiscal 2016 and fiscal 2017 covers these four operating companies and their domestic and overseas Group companies. (Group companies are directly-owned consolidated subsidiaries). The fiscal 2017 data coverage represents 76% of the Mitsubishi Chemical Holdings Corporation (MCHC) Group's revenue.

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	FY2015	FY2016	FY2017
<b>Environmental Impact</b>			
☑ NOx emissions (thousand tons)	8.04	8.96	<b>8.12</b>
☑ SOx emissions (thousand tons)	3.08	4.77	<b>4.42</b>
☑ Particulate emissions (thousand tons)	0.2	0.2	<b>0.2</b>
☑ VOC emissions (thousand tons)* <sup>1</sup>	4.91	6.08	<b>6.07</b>
☑ COD emissions (thousand tons)* <sup>2</sup>	1.74	2.00	<b>2.08</b>
☑ Total nitrogen emissions in water discharged (thousand tons)* <sup>2</sup>	5.53	6.06	<b>6.04</b>
☑ Total phosphorous emissions (thousand tons)* <sup>2</sup>	0.05	0.09	<b>0.07</b>
☑ PRTR chemical substance emissions (thousand tons)* <sup>3</sup>	1.11	0.99	<b>1.10</b>

\*1 VOC: Chemicals subject to data collection are VOCs included in the Japanese pollutant release and transfer register (PRTR) Law and in the PRTR chemical survey of the Japan Chemical Industry Association, as well as ethylene, propylene and ethanol.

\*2 Total COD emissions, total nitrogen emissions and total phosphorous emissions each show total volume of emissions discharged into rivers, lakes and oceans. Emissions into sewage systems are excluded.

\*3 PRTR chemical substance emissions: The scope of data aggregation covers four operating companies and their domestic Group companies' operating sites. The fiscal 2016 data has been recalculated to cover the Group's domestic operating sites, excluding the overseas sites.

<b>Water Withdrawal/Discharge</b>			
☑ Water withdrawal (million m <sup>3</sup> ) (excluding seawater)	171	189	<b>193</b>
☑ Water withdrawal/Water risk regions (million m <sup>3</sup> ) (excluding seawater)* <sup>4</sup>	—	—	<b>24</b>
☑ Water discharge (million m <sup>3</sup> ) (excluding seawater)* <sup>5</sup>	135	149	<b>147</b>
Water discharge into oceans (million m <sup>3</sup> ) (excluding seawater)* <sup>5</sup>	70	74	<b>67</b>
Water discharge into lakes and rivers (million m <sup>3</sup> )	58	58	<b>61</b>
Water discharge into sewers and off-site wastewater treatment plants (million m <sup>3</sup> )	7	17	<b>19</b>
☑ Water discharge/Water risk regions (million m <sup>3</sup> ) (excluding seawater)* <sup>4</sup>	—	—	<b>18</b>

\*4 Water risk regions are the Mizushima, Sakaide and Kakogawa plants and two factories in Indonesia's Merak. The data is disclosed starting in fiscal 2017.

\*5 Figures for fiscal 2015 and 2016 have been revised following a review of seawater withdrawal.

<b>Waste</b>			
☑ Waste generated (thousand tons)* <sup>6</sup>	372(29)	502(29)	<b>540(15)</b>
☑ Landfill disposal (thousand tons)* <sup>7</sup>	8(5.1)	19(4.2)	<b>24(4.0)</b>
☑ Hazardous waste discharged (thousand tons)* <sup>8</sup>	—	—	<b>32</b>

\*6 Figures in parentheses denote volume of waste generated from the waste treatment business (not included).

\*7 Figures in parentheses denote volume of landfill disposal from the waste treatment business (not included).

\*8 Hazardous waste discharged: The total amount of specially-controlled industrial waste discharged by TNSC and its domestic Group companies and MCC and Hazardous waste discharged by MCC's overseas Group companies. Definitions of Hazardous waste are based on regulations in the countries where they are generated. Data aggregation started from fiscal 2017.

<b>Environmental Accounting*<sup>9</sup></b>			
Environmental protection cost			
Investment amount (million yen)	5,396	9,127	<b>14,339</b>
Expense amount (million yen)	33,720	33,842	<b>33,946</b>
Economic benefit of environmental protection measures (million yen)	2,652	2,842	<b>3,241</b>

\*9 Scope of data aggregation: The data for fiscal 2015 covers MTPC (non-consolidated) and its domestic Group companies, and within MCC, the former Mitsubishi Plastics, Inc. (non-consolidated) and Mitsubishi Rayon Co. Ltd. (non-consolidated) and its domestic group companies. For fiscal 2016 and 2017, data aggregation covers MCC (non-consolidated), MTPC (non-consolidated) and its domestic group companies, TNSC (non-consolidated) and its domestic group companies and certain domestic group companies of LSII.

There were no significant environmental accidents or leaks and no hazardous wastes as defined by the Basel Convention were transported.

## Environmental Data

## Calculation Method 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 and its technical guidance issued by the GHG Protocol, the Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain issued by the World Business Council for Sustainable Development (WBCSD), and the Green Value Chain Platform initiated by the Japanese government.

Especially, for the emission factors for greenhouse gas (GHG) emissions, we use data available in the Green Value Chain Platform and information provided by MiLCA, a life cycle assessment software developed by the Japan Environmental Management Association for Industry.

## Scope of data aggregation:

The data for fiscal 2015 covers MCC, MTPC, LSII, and TNSC as well as their domestic companies. The data for fiscal 2016 and 2017 covers the four operating companies and their domestic and overseas Group companies. (Group companies are directly-owned consolidated subsidiaries).

## Calculation Method by Category

<b>Category 1</b> Purchased goods and services	Calculated by multiplying the amounts of raw materials and services in physical or monetary units purchased by Group companies from outside the MCHC Group by the respective emission factor for each type of raw material or service.
<b>Category 2</b> Capital goods	Calculated by multiplying the amounts invested in capital goods during the year by an emission factor per unit of investment amount.
<b>Category 3</b> Fuel- and energy-related activities not included in Scope 1 or Scope 2	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 MCHC Group. Fuel: calculated by multiplying the amount purchased during the year by an emission factor for each fuel type. Electricity and steam: calculated by multiplying the amount purchased from outside the Group by the emission factor of purchased energy and transportation loss.
<b>Category 4</b> Upstream transportation and distribution (including distribution services whose cost was borne by the Group)	This category includes GHG emissions generated during the international transportation of purchased coal, coal derived products, olefins, and methanol, which have significant transport weight. (Raw materials whose GHG emissions from transportation are included in Category 1 are not included in the scope of calculation for this category). Transportation and distribution of products for which the Group bears the cost are included in this category. GHG emissions generated in transporting products within Japan that were sold (downstream side) in fiscal 2015 and 2016, the emissions were calculated by subtracting the emissions reported as the logistic subsidiary's domestic Scope 1 emissions from the Group's domestic emissions resulting from the shipping of cargoes that were reported under the Act on Promotion of Global Warming Countermeasures. The emissions related to international transportation of exported goods are calculated by focusing on large transportation volume for petrochemical products and coal products. The emissions are calculated by multiplying transportation volume (ton-kilometer) by the emission factor for each mode of transportation, where the transportation volume is calculated by multiplying the freight volume by the transportation distance.
<b>Category 5</b> Waste generated in operations	This category includes GHG emissions generated during the incineration, landfill disposal, and recycling of waste discharged from production sites. Waste that is incinerated or landfilled includes items such as sludge and plastic, and the GHGs that are released during incineration are calculated by multiplying the amount of waste by a corresponding emission factor.
<b>Category 6</b> Business travel	The amount of business travel expenses for two Group companies for a year is calculated, and the ratio to revenue for these amounts is used as the representative figure for the MCHC Group (business travel expense ratio). The business travel expenses for the entire MCHC Group are estimated by multiplying the revenue for the MCHC Group by the business travel expense ratio. GHG emissions are calculated by multiplying this amount by an emission factor calculated based on each business trip's details in a certain Group company and the emission factors for each transportation mode.
<b>Category 7</b> Employee commuting	In Japan, the number of employees at each worksite is multiplied by the ratios of transportation modes used for commuting in each prefecture (according to a national survey in 2010) to estimate the number of employees using each mode of transportation for the entire MCHC Group in Japan. Commute distances are calculated using the national statistics for Japan, and these are multiplied by the emission factor for each mode of transportation. Overseas, the emissions are estimated based on the assumptions of the WBCSD guidelines.
<b>Category 8</b> Upstream leased assets	Since the amount of applicable lease assets is negligible, this category is not estimated.
<b>Category 9</b> Downstream transportation and distribution	The emissions associated with the transportation of sold products fall within Category 4 as the Group basically bears the cost of transporting products.
<b>Category 10</b> Processing of sold products	The MCHC Group's main product group is raw materials products, and since these products can be processed into many types of products it is difficult to rationally calculate the GHG emissions associated with the products' processing. Therefore, in accordance with the WBCSD calculation guidance for the chemical industry, we exclude this category from the scope of calculation.
<b>Category 11</b> Use of sold products	The amount of GHG emissions generated from combustion of fuel products sold outside of the MCHC Group (cokes, coke oven gas, etc.) is calculated by multiplying the amount of each type of fuel sold by an emission factor. CO <sub>2</sub> emissions generated from the products TNSC sold, such as propane gas and dry ice, and from operation of the air separation units (ASU) it sold (calculated for the number of years of depreciation in accounting treatment), have been added to the calculations.
<b>Category 12</b> End-of-life treatment of sold products	The final disposal location (Japan or overseas) is estimated for each type of the product sold that is used as raw materials, and the emissions are calculated by multiplying the disposal amount for each location by the emission factor for each final product and the disposal method for each location. The disposal method for final products overseas is estimated to be 20% incineration and 80% landfill disposal.
<b>Category 13</b> Downstream leased assets	Since the amount of applicable lease assets is negligible, this category is not estimated.
<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> Investment	The amount of GHG emissions related to investments are calculated for the 10 main investee companies in which MCHC held special investment shares (shareholding ratios of 20-50%) and for the 6 main affiliates of TNSC by multiplying the emissions of these companies by MCHC's shareholding ratio (number of shares held by MCHC/total number of issued shares) and for TNSC's affiliates by multiplying by TNSC's shareholding ratio. The investee companies' GHG emissions are based on figures published in accordance with the Act on Promotion of Global Warming Countermeasures. However, since the actual figures for fiscal 2017 have yet to be announced, the most recently published figures are substituted. Actual fiscal 2017 emissions data is used for Kashima Kita Electric Power Corporation and the main affiliates of TNSC, which have significant amount of emissions.

## Social Data

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		FY2015	FY2016	FY2017
<b>Basic Information</b>				
☑	Number of employees	22,508	21,736	<b>21,770</b>
☑	Number of employees by gender			
	Male	19,194	18,459	<b>18,440</b>
☑				
	Female	3,314	3,277	<b>3,330</b>
☑	Number of employees by age group			
	20s or younger	2,423	2,380	<b>2,426</b>
☑				
	30s	5,177	5,089	<b>5,051</b>
☑				
	40s	8,621	8,131	<b>7,621</b>
☑				
	50s or older	6,287	6,136	<b>6,672</b>
☑	Average age	42.7	43.2	<b>43.1</b>
☑	Number of new employees	455	526	<b>701</b>
☑	Number of employee turnover	971	695	<b>537</b>
☑	Number of unionized employees	15,117	14,585	<b>14,551</b>
☑	Percentage of unionized employees	67.2	67.1	<b>66.8</b>
☑	Number of layoffs*1	2	3	<b>4</b>

Scope of data aggregation: The figures show those employed by the four operating companies (MCC, MTPC, LSII, and TNSC), including those seconded to other companies but excluding those seconded from other companies and workers in fixed-term employment.

\*1 People leaving at the company's behest (dismissal)

<b>Diversity</b>				
☑	Percentage of females	14.7	15.1	<b>15.3</b>
☑	Percentage of female managers*2	7.1	7.7	<b>8.0</b>
☑	Percentage of employees with disabilities	2.2	2.1	<b>2.1</b>
☑	Number of employees rehired post-retirement	1,038	1,040	<b>1,041</b>

Scope of data aggregation: The figures show those employed by the four operating companies (MCC, MTPC, LSII, and TNSC), including those seconded to other companies but excluding those seconded from other companies. Indicators other than the number of employees rehired post-retirement do not include workers in fixed-term employment.

\*2 Percentage of female employees out of all employees at assistant manager level and above.

<b>Work-Life Balance</b>					
☑	Number of employees taking childcare leave	Total	283	278	<b>305</b>
☑		Male	27	31	<b>55</b>
☑		Female	256	247	<b>250</b>
☑	Number of employees taking family care leave		9	16	<b>20</b>
☑	Acquisition rate of annual paid leave		66.8	67.6	<b>65.4</b>

Scope of data aggregation: The figures show those employed by the four operating companies (MCC, MTPC, LSII, and TNSC), including those seconded to other companies but excluding those seconded from other companies and workers in fixed-term employment.

<b>Occupational Safety</b>					
☑	Lost-time injuries frequency rate (LTIFR)*3		0.48	0.30	<b>1.11</b>

Scope of data aggregation: The data for fiscal 2015 and 2016 covers the four operating companies (MCC, MTPC, LSII, and TNSC) and their domestic Group companies. The data for fiscal 2017 covers the four operating companies and their domestic and overseas Group companies with worksite operation units.

\*3 The LTIFR is the number of lost-time injuries, illnesses and fatalities per million hours worked.

<b>Other</b>					
☑	Number of employees taking volunteer leave*4		39	42	<b>39</b>
	Charitable contributions (million yen)*5		1,656	1,865	<b>1,557</b>
	Political contributions (million yen)*5		26	31	<b>30</b>

\*4 Scope of data aggregation: The figures show those employed by the four operating companies (MCC, MTPC, LSII, and TNSC), including those seconded to other companies but excluding those seconded from other companies and workers in fixed-term employment.

\*5 Scope of data aggregation: Figures from the four operating companies (MCC, MTPC, LSII and TNSC).

# Independent Assurance Report



## Independent Assurance Report

To the President and CEO of Mitsubishi Chemical Holdings Corporation

We were engaged by Mitsubishi Chemical 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, 2017 to March 31, 2018 included in its Fiscal 2017 Data Sheet (the "Data sheet") for the fiscal year ended March 31, 2018.

### 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 sheet.

### 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 sheet, 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 sheet 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 Sakaide Plant of Mitsubishi Chemical Corporation and PT. Mitsubishi Chemical Indonesia 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 sheet are not prepared, in all material respects, in accordance with the Company's reporting criteria as described in the Data sheet.

### 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 26, 2018