



Environmental Activities: Supplementary Data

★: Assured by an independent assurance provider

2 Environmental Protection

Environmental Performance

Sumitomo Chemical collates and totals environmental data for the Company and Group companies in Japan and overseas, including data on energy and resource consumption, production quantities, and environmental impact (e.g., release of pollutants into the air and water).

FY2017–2019 Environmental Performance (Sumitomo Chemical and Group Companies in Japan)

INPUT Energy and Resources



Water

	(Million tons)		
	FY2017	FY2018	FY2019★
Industrial water	67.2	63.1	63.4
Drinking water	0.9	0.8	0.8
Seawater	930.3	848.1	918.2
Groundwater	25.5	22.7	21.8
Other water	2.5	2.4	2.2
Total	1,026.4	937.1	1,006.4



Energy

Calculated as kl of crude oil

	(Thousand kl)		
	FY2017	FY2018	FY2019★
Fuel, heat, and electricity*1	1,837	1,690	1,720



Exhaustible Resources

	(Thousand tons)		
	FY2017	FY2018	FY2019
Hydrocarbon compounds	1,835	1,676	1,829
Metals (excluding minor metals)*2	120	121	109
Minor metals*3	10.17	13.54	11.20

PCB/CFCs under Secure Storage

	FY2017	FY2018	FY2019
No. of electrical devices containing high concentrations of PCBs*4	58	10	13
PCB volume (pure equivalent) (kl)*4	1.0	0.1	0.1
No. of refrigeration units using specified CFCs as a coolant	48	32	32
No. of refrigeration units using HCFCs as a coolant	262	272	260

Note: The number of companies included in the boundary of calculation for the environmental performance data on page 121 is as follows for each year.

FY2017: Sumitomo Chemical and Group companies in Japan: 21 companies

FY2018: Sumitomo Chemical and Group companies in Japan: 21 companies

FY2019: Sumitomo Chemical and Group companies in Japan: 21 companies

*1 From fiscal 2017, the energy (calculated as kl of crude oil) indices were calculated in accordance with the GHG Protocol (refer to page 208 "Calculation Standards for Environmental and Social Data Indicators").

• Having adopted the GHG Protocol standards for our GHG emission disclosures, we now include the following data previously excluded from calculations: amount of energy used to produce power and steam sold to external parties by Sumitomo Chemical and Group companies in Japan (the portion attributable to energy provider subsidiaries was included in years prior to fiscal 2016). In addition, the amount of energy used by Sumitomo Chemical's non-production sites is included from fiscal 2017, and the amount of energy used by the Group companies in Japan non-production sites is included from fiscal 2018. From fiscal 2018, the boundary of calculation has been expanded to include principal consolidated Group companies in Japan, which account for up to 99.8% of consolidated net sales.

*2 Calculations include the following 12 metals: iron, gold, silver, copper, zinc, aluminum, lead, platinum, titanium, palladium, gallium, and lithium.

*3 Calculations include the following seven minor metals: nickel, chromium, tungsten, cobalt, molybdenum, manganese, and vanadium. The supply structure for each of these minor metals is extremely fragile. These minor metals are subject to national stockpiling.

*4 Fluorescent lamps and mercury lamp ballast as well as contaminated substances (wastepaper, etc.), including PCB waste, are not included in unit and volume data.



Environmental Activities: Supplementary Data

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OUTPUT Product Manufacturing and Environmental Impact



Products

	(Thousand tons)		
	FY2017	FY2018	FY2019★
(Calculated on the basis of ethylene production)*1	2,602	2,490	2,521



Water
Pollutant
Emissions

		(Tons)		
		FY2017	FY2018	FY2019★
COD	Coastal waters/waterways	998	998	887
	Sewer systems	234	216	197
Phosphorus	Coastal waters/waterways	32	35	30.5
	Sewer systems	6	5	4.7
Nitrogen	Coastal waters/waterways	1,442	1,488	1,457
	Sewer systems	72	96	53.3
Substances subject to the PRTR Act		45	13	8.0



Water
Discharge

	(Million tons)		
	FY2017	FY2018	FY2019
Total amount of water discharge	987	911	980

Note: Includes seawater emissions of Sumitomo Joint Electric Power Co., Ltd.



Waste
Materials

	(Thousand tons)		
	FY2017	FY2018	FY2019★
Waste emissions*2	261	244	232
Landfill*2	21	23	22
(Breakdown)			
On-site landfill	0	0	0
External landfill	21	23	22

Note: The number of companies included in the boundary of calculation for the environmental performance data on page 122 is as follows for each year.

FY2017: Sumitomo Chemical and Group companies in Japan: 21 companies

FY2018: Sumitomo Chemical and Group companies in Japan: 21 companies

FY2019: Sumitomo Chemical and Group companies in Japan: 21 companies

*1 Certain assumptions were made in calculations due to the difficulty of obtaining weight-based figures for some products.

*2 The amount of coal ash generated at Sumitomo Joint Electric Power, which is included in "Waste emissions" and "Landfill" (Sumitomo Chemical and Group companies in Japan) is calculated on a dry-weight basis.



Environmental Activities: Supplementary Data

Evaluation of Environmental Protection Costs and Economic Effects through Environmental Accounting

Sumitomo Chemical continuously gathers and evaluates data on environmental protection-related expenses, investments, and economic results in line with the Company's environmental accounting system introduced in fiscal 2000.

◆ Items Pertaining to Environmental Accounting

- (1) Period: April 1, 2019 to March 31, 2020
- (2) Boundary: Sumitomo Chemical and 21 major consolidated subsidiaries (16 in Japan and 5 overseas)*
- (3) Composition (Classification): Based on Ministry of the Environment (Japan) guidelines
- (4) Outline of the results (investment and expenses): Consolidated investment decreased year on year by 9.8 billion yen, and consolidated expenses increased by 2.7 billion yen.

* Sumitomo Dainippon Pharma Co., Ltd.; Koei Chemical Co., Ltd.; Taoka Chemical Co., Ltd.; Asahi Chemical Co., Ltd.; Sumitomo Joint Electric Power Co., Ltd.; Sumika Color Co., Ltd.; Nihon Medi-Physics Co., Ltd.; Nippon A&L Inc.; SanTerra Co., Ltd.; Sumika-Kakoushi Co., Ltd.; Sumika Agrotech Co., Ltd.; Ceratec Co., Ltd.; SC Environmental Science Co., Ltd.; SN Kasei Co., Ltd.; Sumika Agro Manufacturing Co., Ltd.; Sumika Plastech Co., Ltd.; Dongwoo Fine-Chem Co., Ltd.; Sumitomo Chemical Asia Pte Ltd; The Polyolefin Company (Singapore) Pte. Ltd.; Sumika Technology Co., Ltd.; and Sumika Electronic Materials (Wuxi) Co., Ltd.

■ Environmental Protection Cost

(Billion yen)

Classification	Details of Major Initiatives	FY2018				FY2019			
		Non-Consolidated		Consolidated		Non-Consolidated		Consolidated	
		Investment	Expenses	Investment	Expenses	Investment	Expenses	Investment	Expenses
Facility Area Costs		5.3	18.7	11.7	30.9	0.7	20.4	1.9	32.7
Breakdown	Pollution Prevention Costs	(4.9)	(13.6)	(7.9)	(18.5)	(0.5)	(15.2)	(1.3)	(19.6)
	Global Environmental Protection Costs	(0)	(0.2)	(3.3)	(3.9)	(0)	(0.2)	(0.4)	(4.3)
	Resource Recycling Costs	(0.4)	(4.9)	(0.5)	(8.5)	(0.2)	(5.0)	(0.2)	(8.8)
Upstream/Downstream Costs		0	0	0	0.3	0	0	0	0.3
Administrative Costs		0	0.7	0	1.4	0	0.8	0	1.4
R&D Costs		0.1	6.6	0.1	6.7	0.1	7.4	0.1	7.5
Social Activities Costs		0	0.5	0	0.7	0	0.5	0	0.8
Environmental Remediation Costs		0	0	0	0	0	0	0	0
Total		5.4	26.5	11.8	40.0	0.8	29.1	2.0	42.7



Environmental Activities: Supplementary Data

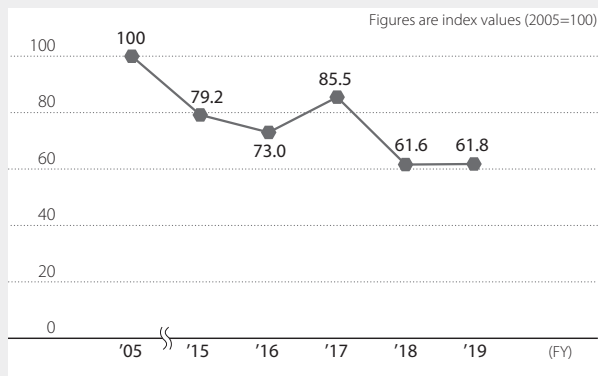
Economic Effects

(Billion yen)

Results	FY2018		FY2019	
	Non-Consolidated	Consolidated	Non-Consolidated	Consolidated
Reduced costs through energy saving	0.3	0.4	0.2	0.3
Reduced costs through resource saving	0.1	0.1	0.3	0.4
Reduced costs through recycling activities	2.7	2.8	2.8	3.0
Total	3.1	3.3	3.3	3.7

Note: Since the calculation standards have been changed, the data has been retroactively revised in previous fiscal years

Cost Efficiency of Environmental Protection Measures (Sumitomo Chemical (All Worksites))



In fiscal 2005, we began implementing measures to improve the cost efficiency of our environmental protection measures by making sure that all activities were as cost effective as possible. We will implement more effective measures by analyzing and studying the breakdown of our environmental protection costs and reviewing each item to determine its importance. We calculate the cost efficiency of our environmental protection as the ratio of annual total production value to total environmental protection costs, in order to better reflect actual production activities in the calculation.



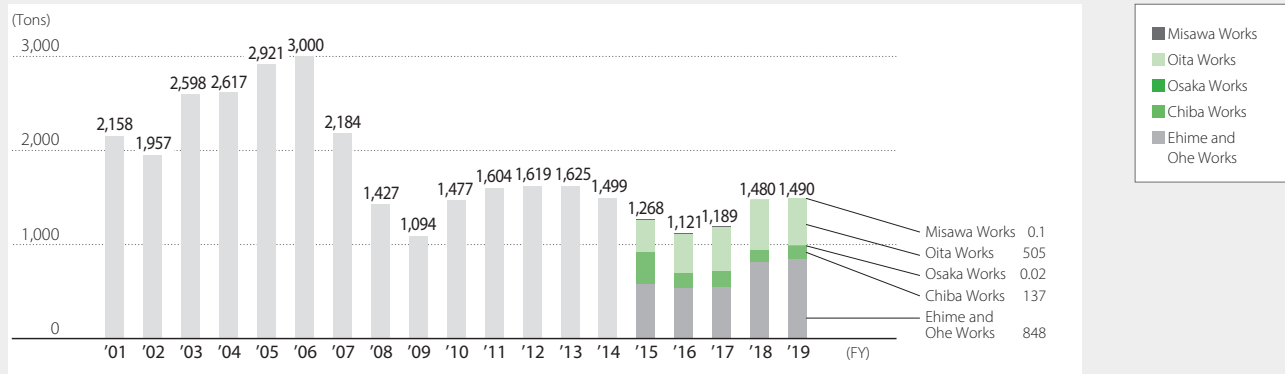
Environmental Activities: Supplementary Data

Preventing Pollution: Atmospheric Emissions of SOx, NOx, Soot, and Dust

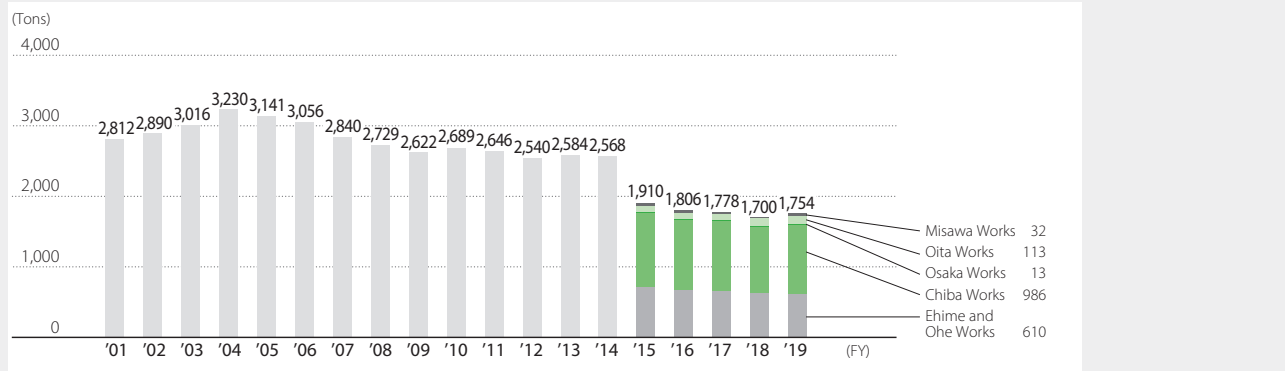
In 1970, Sumitomo Chemical achieved a marked reduction in the release of SOx, NOx, soot, and dust into the atmosphere, and continued to maintain low levels of emissions from 1980 to the present. Furthermore, the Company has concluded cooperative agreements with local municipal governments at each of its Works, establishing voluntary control levels that are stricter than the standards given under applicable laws and regulations.

Note: Data for the Gifu Plant and Okayama Plant from fiscal 2004 to fiscal 2012 is included in Osaka Works.
Data for the Gifu Plant and Okayama Plant from fiscal 2013 is included in Oita Works.

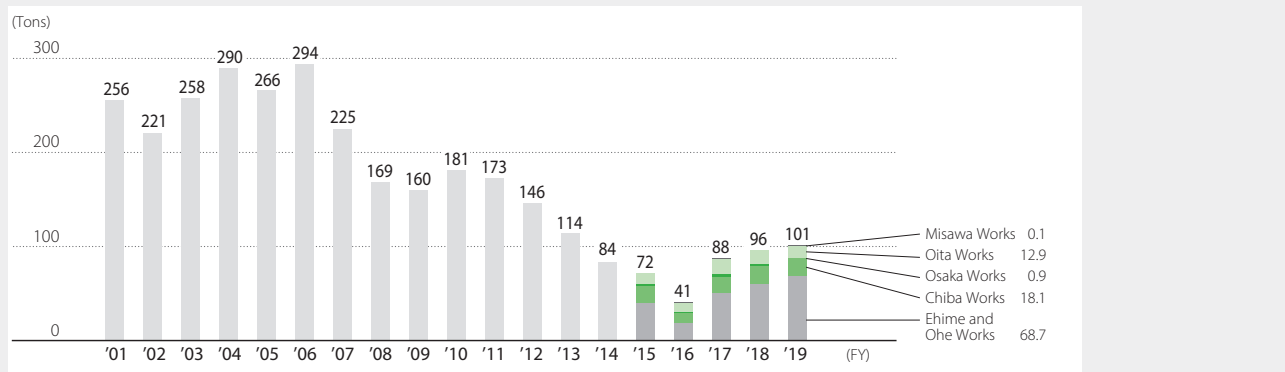
SOx Emissions (Sumitomo Chemical)



NOx Emissions (Sumitomo Chemical)



Soot and Dust Emissions (Sumitomo Chemical)



Target

Continue to sustain levels below voluntary control standard values.



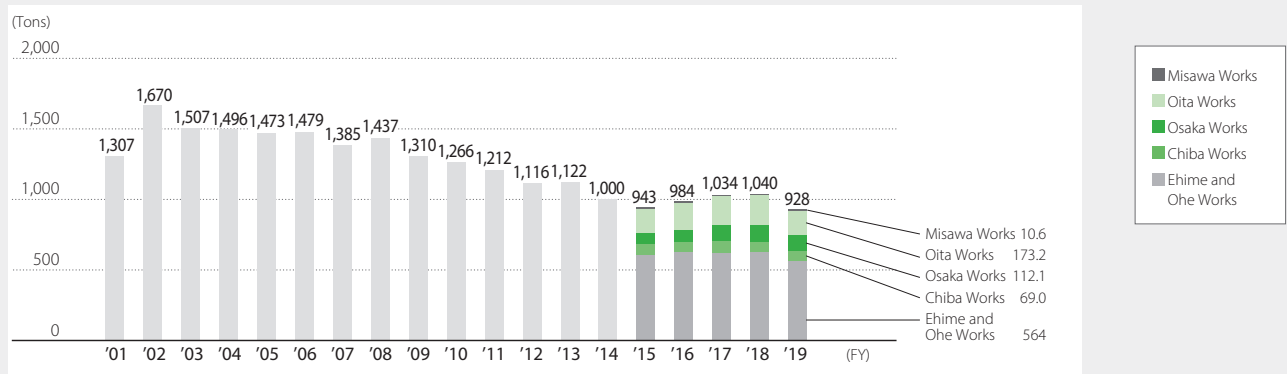
Environmental Activities: Supplementary Data

Water Emissions of COD, Nitrogen, and Phosphorus

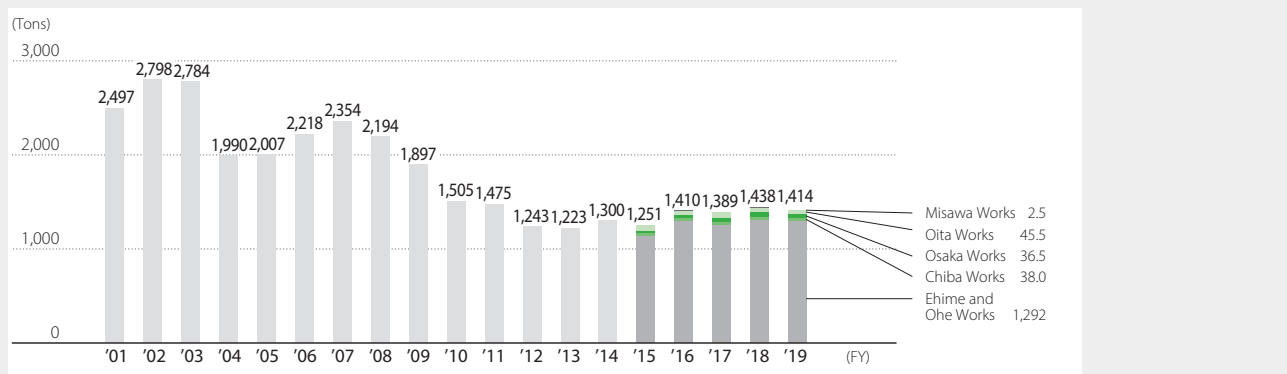
A number of measures have been implemented to cut emissions, in line with fifth-generation Water Quality Standards, and emissions of COD, nitrogen, and phosphorus into waterways have been significantly reduced since fiscal 2004. Sumitomo Chemical has also concluded cooperative agreements with local municipal governments to establish voluntary control levels for COD, nitrogen, and phosphorus released into waterways at each Works. These standards are also stricter than those established under applicable laws and regulations.

Note: Data for the Gifu Plant and Okayama Plant from fiscal 2004 to fiscal 2012 is included in Osaka Works.
Data for the Gifu Plant and Okayama Plant from fiscal 2013 is included in Oita Works.

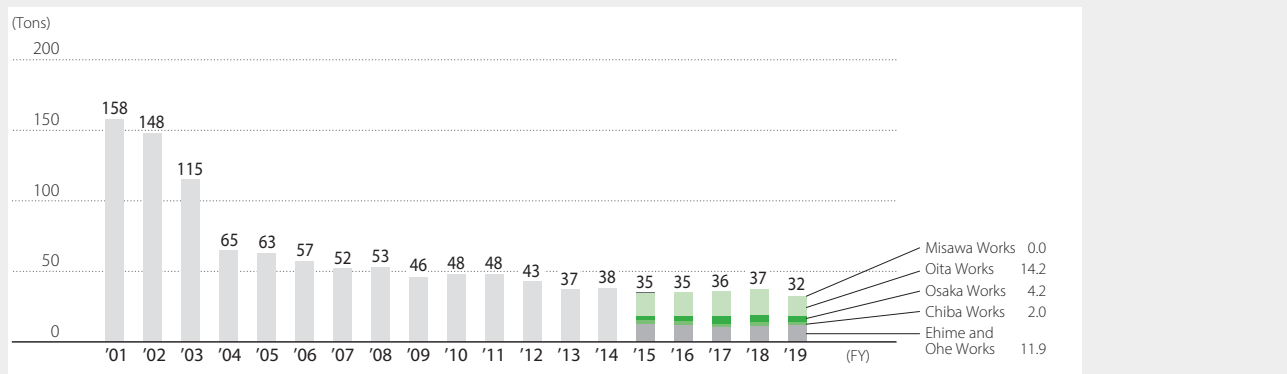
COD Emissions (water emissions include water discharge to sewage systems) (Sumitomo Chemical)



Nitrogen Emissions (Sumitomo Chemical)



Phosphorus Emissions (Sumitomo Chemical)



Target

Continue to sustain levels below voluntary control standard values.

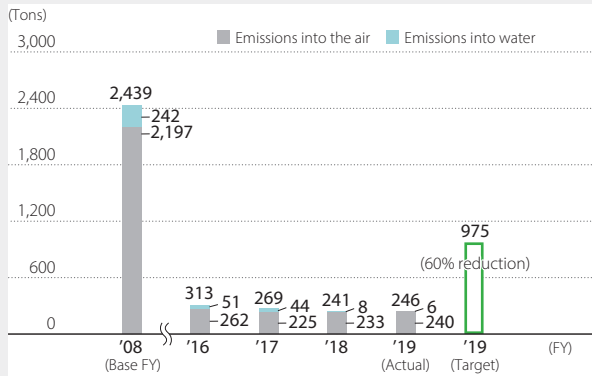


Environmental Activities: Supplementary Data

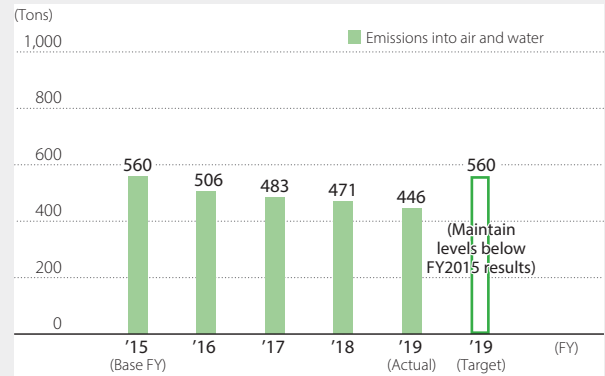
Addressing PRTR and VOCs

Trends in Emissions of Substances Subject to the PRTR Act

Sumitomo Chemical



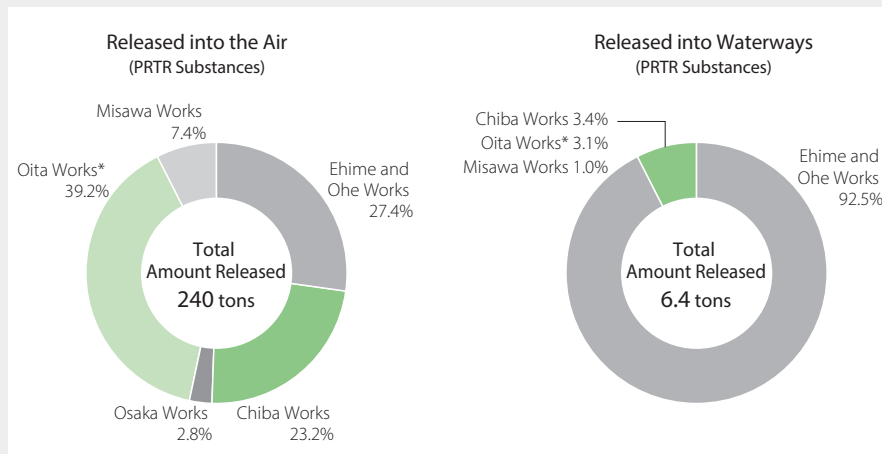
Sumitomo Chemical and Group Companies in Japan



FY2019 Release and Transfer of PRTR Substances (Sumitomo Chemical and Group Companies in Japan)

	Released			Transferred		
	Air	Water	Subtotal	Sewage	Waste	Subtotal
PRTR substances						
Sumitomo Chemical (119 substances)	240	6.4	246	4.1	4,652	4,656
Sumitomo Chemical and Group companies in Japan	438	8.0	448	7.3	7,967	7,974

FY2019 PRTR Substances Released by Works (Sumitomo Chemical)



* Data for the Oita Works includes data for the Gifu and Okayama plants.

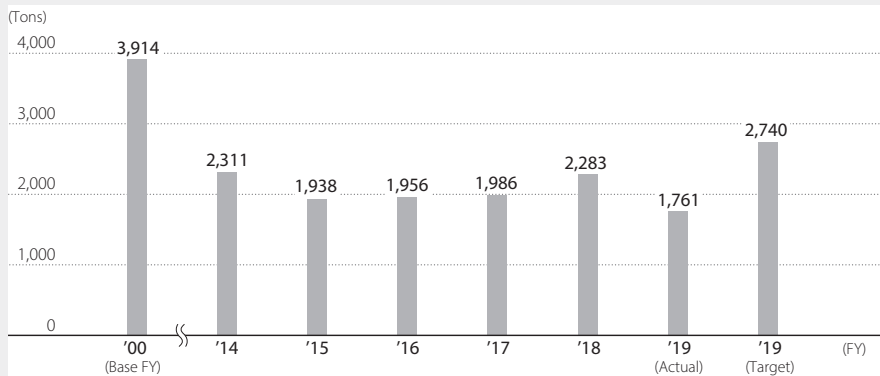
Target Reduce the total release of PRTR substances by 60% compared with fiscal 2008 by fiscal 2019.

Results Reduced the total release of PRTR substances to 246 tons, by 89.9%, compared with fiscal 2008 by fiscal 2019, achieving the target.



Environmental Activities: Supplementary Data

Initiatives to Reduce Emissions of Volatile Organic Compounds (VOCs) (Sumitomo Chemical)



Target

Maintain a 30% reduction in VOC emissions compared with fiscal 2000.

Results

Reduced emissions by 1,761 tons, or 55.0%, compared with fiscal 2000 by fiscal 2019, achieving the target.

Prevention of Ozone Layer Depletion

Number of Refrigeration Units That Use Specified CFCs and HCFCs as Coolants (Sumitomo Chemical and Group Companies in Japan) as of the End of Fiscal 2019

(Number of units)

	Sumitomo Chemical	Sumitomo Chemical and Group companies in Japan
CFC11	8	8
CFC12	3	23
CFC113	0	1
HCFC22	84	226
HCFC123	26	33
HCFC142b	0	1

Target

- Eliminate the use of refrigeration units that use specified CFCs as coolants by fiscal 2025.
- Eliminate the use of refrigeration units that use HCFCs as coolants by fiscal 2045.



Environmental Activities: Supplementary Data

Response to the Pollutant Release and Transfer Register Ordinance(Issued on November 21, 2008)

(Tons, Dioxins: mg-TEQ)

No.	Name of Chemical Compound	Amount Released					Amount Transferred		
		Air	Water	Soil	Landfill	Total	Sewage	Waste	Total
1	Zinc compounds (water-soluble)	0.0	3.4	0.0	0.0	3.4	<0.1	87.1	87.1
2	Acrylic acid and its water-soluble salts	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
3	Methyl acrylate	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.0
4	Acrylonitrile	4.1	0.0	0.0	0.0	4.1	0.0	0.0	0.0
5	Acrolein	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
6	Acetaldehyde	0.3	<0.1	0.0	0.0	0.3	0.0	0.0	0.0
7	Acetonitrile	0.9	0.0	0.0	0.0	0.9	0.0	4.5	4.5
8	o-Anisidine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Aniline	0.7	0.0	0.0	0.0	0.7	0.0	33.8	33.8
10	2-Aminoethanol	<0.1	0.2	0.0	0.0	0.2	0.0	32.2	32.2
11	m-Aminophenol	0.0	<0.1	0.0	0.0	<0.1	0.0	17.5	17.5
12	Allyl alcohol	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
13	Antimony and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	Isobutyraldehyde	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0
15	O-ethylO-6-nitro-meta-tolyl-sec-butylphosphoramidothioate (also known as Butamifos)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	O-ethylO-4-nitrophenyl phenylphosphonothioate (also known as EPN)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	Ethylbenzene	3.0	<0.1	0.0	0.0	3.1	0.1	21.3	21.4
18	Epichlorohydrin	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.0
19	1,2-Epoxypropane (also known as propylene oxide)	0.0	<0.1	0.0	0.0	<0.1	0.0	0.0	0.0
20	Cadmium and its compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
21	ε-Caprolactam	0.2	0.6	0.0	0.0	0.8	0.0	0.0	0.0
22	Xylene	3.3	<0.1	0.0	0.0	3.4	0.1	33.4	33.5
23	Quinoline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	Cumene	12.0	<0.1	0.0	0.0	12.0	0.0	0.0	0.0
25	Cresol	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0
26	Chromium and chromium(III) compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
27	Chromium(VI) compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
28	Chloroaniline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	Chloroacetic acid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	2-chloro-4,6-bis(ethylamino)-1,3,5-triazine (also known as simazine or CAT)	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
31	3-Chloropropene (also known as allyl chloride)	1.6	0.0	0.0	0.0	1.6	0.0	15.3	15.3
32	Chlorobenzene	2.0	<0.1	0.0	0.0	2.0	0.0	163.7	163.7
33	Chloroform	<0.1	0.0	0.0	0.0	<0.1	0.0	300.9	300.9
34	Cobalt and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	Vinyl acetate	23.4	<0.1	0.0	0.0	23.4	0.0	0.0	0.0
36	Salicyl aldehyde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	(RS)-α-Cyano-3-phenoxybenzyl 2,2,3,3-tetramethylcyclopropanecarboxylate (also known as fenpropathrin)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Inorganic cyanide compounds (excluding complex salts and cyanates)	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
39	S-4-chlorobenzyl N,N-diethylthiocarbamate (also known as thiobencarb or benthio carb)	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
40	Tetrachloromethane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Environmental Activities: Supplementary Data

(Tons, Dioxins: mg-TEQ)

No.	Name of Chemical Compound	Amount Released					Amount Transferred		
		Air	Water	Soil	Landfill	Total	Sewage	Waste	Total
41	1,4-Dioxane	<0.1	0.0	0.0	0.0	<0.1	<0.1	119.2	119.2
42	Cyclohexylamine	0.0	<0.1	0.0	0.0	<0.1	0.0	2.2	2.2
43	1,2-dichloroethane	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
44	1,1-Dichloroethylene (also known as vinylidene chloride)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	Cis-1,2-dichloroethylene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	2,2-Dichloro-1,1,1- trifluoroethane (also known as HCFC-123)	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0
47	1,2-Dichloropropane	<0.1	0.0	0.0	0.0	<0.1	0.0	360.0	360.0
48	1,3-Dichloropropene (also known as D-D)	0.5	0.0	0.0	0.0	0.5	0.0	61.0	61.0
49	Dichlorobenzene	0.0	0.0	0.0	0.0	0.0	0.0	153.5	153.5
50	Dichloromethane (also known as methylene chloride)	0.4	0.0	0.0	0.0	0.4	0.0	24.7	24.7
51	Dicyclopentadiene	<0.1	0.0	0.0	0.0	<0.1	0.0	5.5	5.5
52	2,4-Dinitrophenol	0.0	0.0	0.0	0.0	0.0	0.0	37.9	37.9
53	1,3-Diphenylguanidine	0.0	0.4	0.0	0.0	0.4	0.0	7.9	7.9
54	2,6-Di-tert-butyl-4-cresol (also known as BHT)	0.0	<0.1	0.0	0.0	<0.1	0.0	0.0	0.0
55	2,4-Di-tert-butylphenol	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
56	N,N-Dimethylacetamide	0.0	0.0	0.0	0.0	0.0	0.0	10.3	10.3
57	2,4-dimethylaniline	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
58	N,N-Dimethylaniline	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3
59	Dimethylamine	0.0	<0.1	0.0	0.0	<0.1	0.0	1.9	1.9
60	N,N-Dimethylformamide	<0.1	<0.1	0.0	0.0	<0.1	0.0	117.7	117.7
61	Mercury and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62	Organotin compounds	0.0	<0.1	0.0	0.0	<0.1	0.0	0.7	0.7
63	Styrene	2.2	0.0	0.0	0.0	2.2	0.0	0.6	0.6
64	Selenium and its compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
65	Dioxins	4.2	5.4	0.0	0.0	9.6	0.2	10.5	10.7
66	Thiourea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67	Tetrachloroethylene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
68	2,3,5,6-Tetrachloro-para-benzoquinone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
69	Tetramethylthiuram disulfide (also known as thiuram or thiram)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	Terephthalic acid	0.0	0.0	0.0	0.0	0.0	0.0	418.0	418.0
71	Water-soluble copper salts (excluding complex salts)	0.0	<0.1	0.0	0.0	<0.1	<0.1	0.0	<0.1
72	Triethylamine	0.6	0.2	0.0	0.0	0.9	0.6	40.3	40.9
73	1,1,1-trichloroethane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	1,1,2-trichloroethane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	Trichloroethylene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	2,4,6-Trichloro-1,3,5-triazine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	1,2,3-Trichloropropane	<0.1	0.0	0.0	0.0	<0.1	0.0	16.3	16.3
78	1,2,4-Trimethylbenzene	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0
79	Toluidine	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.6
80	Toluene	139.1	0.1	0.0	0.0	139.3	0.3	2,291.8	2,292.1
81	Naphthalene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	Lead compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
83	Nickel compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
84	Nitrobenzene	0.6	0.6	0.0	0.0	1.2	0.0	44.3	44.3
85	Vanadium compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Environmental Activities: Supplementary Data

(Tons, Dioxins: mg-TEQ)

No.	Name of Chemical Compound	Amount Released					Amount Transferred		
		Air	Water	Soil	Landfill	Total	Sewage	Waste	Total
86	Arsenic and its inorganic compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
87	Hydrazine	<0.1	<0.1	0.0	0.0	<0.1	0.0	42.1	42.1
88	Hydroquinone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	4-Vinyl-1-cyclohexene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	biphenyl	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	Pyridine	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
92	1,3-Butadiene	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
93	Bis(2-ethylhexyl)phthalate	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.8
94	tert-Butyl hydroperoxide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	2-tert-Butyl-5-methylphenol	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
96	Hydrogen fluoride and its water-soluble salts	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
97	2-Propyn-1-ol	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
98	2-Bromopropane	0.0	0.0	0.0	0.0	0.0	0.0	6.2	6.2
99	Hexadecyltrimethylammonium chloride	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
100	n-Hexane	27.5	<0.1	0.0	0.0	27.6	0.0	105.2	105.2
101	Water-soluble salts of peroxydisulfuric acid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102	Benzyl chloride	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
103	Benzaldehyde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
104	Benzene	0.3	0.2	0.0	0.0	0.5	<0.1	0.0	<0.1
105	Boron compounds	0.0	0.0	0.0	0.0	0.0	<0.1	3.1	3.2
106	Polychlorinated biphenyls (also known as PCBs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107	Poly (oxyethylene) alkyl ether (alkyl C=12–15) and its mixture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
108	Formaldehyde	<0.1	<0.1	0.0	0.0	0.1	2.8	8.5	11.3
109	Manganese and its compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
110	Phthalic anhydride	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
111	Maleic anhydride	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
112	2,3-Epoxypropyl methacrylate	1.6	0.0	0.0	0.0	1.6	0.0	0.0	0.0
113	Methyl methacrylate	8.7	0.0	0.0	0.0	8.7	0.0	44.2	44.2
114	(Z)-2'-Methylacetophenone= 4,6-dimethyl-2-pyrimidinyl hydrazone (also known as Ferimzone)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115	Methylamine	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
116	3-Methylthiopropional	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117	Methylnaphthalene	3.7	0.0	0.0	0.0	3.7	0.0	0.0	0.0
118	Morpholine	0.0	<0.1	0.0	0.0	<0.1	0.0	0.0	0.0
119	Triphenyl phosphate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		240.3	6.4	0.0	0.0	246.7	4.1	4,652.0	4,656.1



Environmental Activities: Supplementary Data

Industrial Waste Reduction

PCB Waste (Sumitomo Chemical and Group Companies in Japan)

Storage and Control of High Concentrations of PCB Waste as of the End of Fiscal 2019

	Number of units of PCB waste			Volume of PCBs (kl)
	Total	Storage	Usage	
Sumitomo Chemical	4	4	0	<0.01
Sumitomo Chemical and Group Companies in Japan	13	9	4	0.1

Note: The volume of PCBs does not include minute amounts of PCB waste in the PCB net conversion amount. High concentrations of PCBs in such classes of materials as fluorescent lamps, mercury lamp ballast, and contaminated substances (wastepaper, etc.) fall outside the scope of collation.

Target

Properly collect and store high-concentration PCB-containing waste and complete treatment of this waste at an early date.

▼

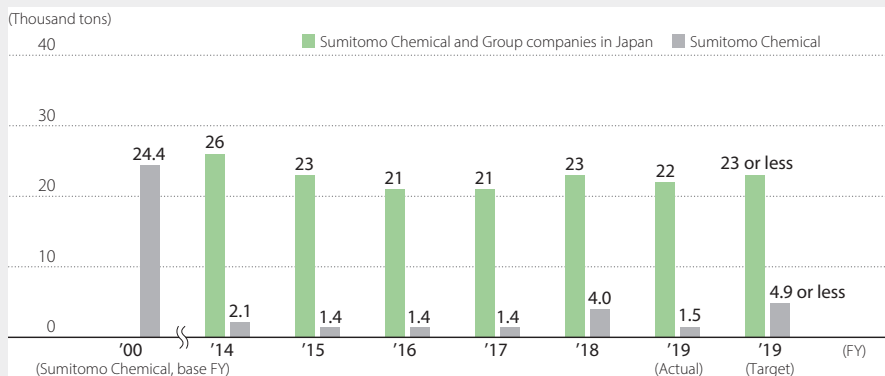
Results

Untreated high-concentration PCB-containing waste is still being collected and stored.

In accordance with the Act on Special Measures against PCB Waste, Sumitomo Chemical properly collects high-concentration polychlorinated biphenyl (PCB)-containing waste.* The Company then stores this industrial waste, which is subject to special controls, in specified areas within the Company's waste storage facilities, subsequently ensuring strict control of this waste.

* Transformers, capacitors, and other electronic devices that contain PCB insulating oil.

Landfill Disposal Amount (Sumitomo Chemical and Group Companies in Japan)



Target

We aim to maintain a landfill disposal amount of no more than 4,900 tons, 80% less than the fiscal 2000 level, for Sumitomo Chemical and no more than the fiscal 2015 level of 23,000 tons for Sumitomo Chemical and Group companies in Japan.

▼

Results

Targets were achieved for Sumitomo Chemical as well as Sumitomo Chemical and Group companies in Japan.



Environmental Activities: Supplementary Data

Digitization of Manifests to Be Prepared Pursuant to the Waste Management and Public Cleansing Act (Sumitomo Chemical)

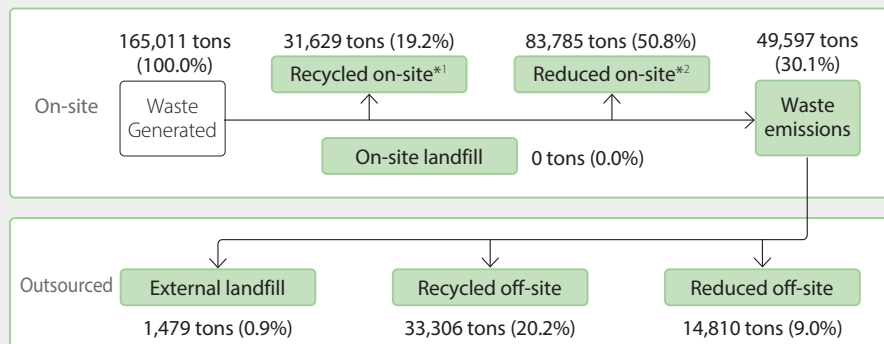
	Number of manifests issued	Number of manifests digitized	Digitization rate (%)
FY2013	19,389	15,329	79
FY2014	18,662	14,930	80
FY2015	18,973	16,337	86
FY2016	19,868	19,594	99
FY2017	19,858	19,585	99
FY2018	20,598	20,355	99
FY2019	19,835	19,726	99

Sumitomo Chemical has been fostering the digitization of manifests to improve operational efficiency and ensure compliance with the law and transparency of data.

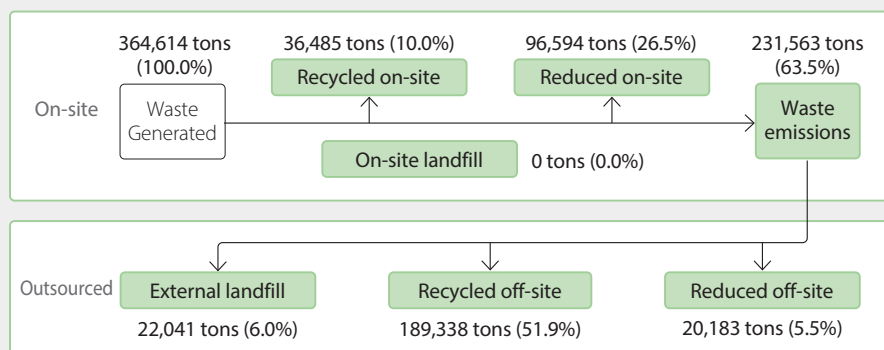


Environmental Activities: Supplementary Data

Waste Disposal Flow Chart and FY2019 Results (Sumitomo Chemical)



(Sumitomo Chemical and Group Companies in Japan)



*1 Recycled waste: Total amount of waste that was reused, recycled, or thermally recycled

*2 Reduced waste: Total amount of waste reduced through incineration, etc.

List of FY2019 Results by Item in connection with the Disposal of Waste (Sumitomo Chemical)

(Tons)

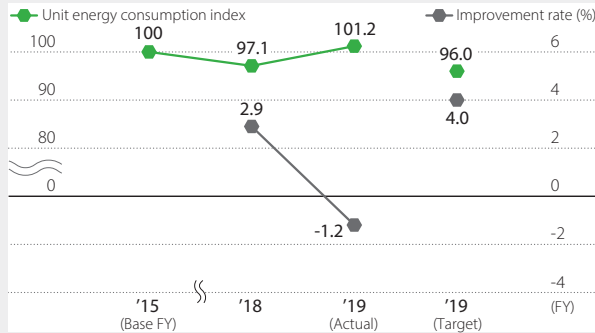
Type	Waste	Recycled on-site		Reduced on-site		Waste emissions	On-site landfill	Reduced off-site	Recycled off-site		External landfill
	Generated	Reused, recycled	Thermally recycled	Incineration	Other				Reused, recycled	Thermally recycled	
Burnt residue	4,666.8					4,666.8			4,347.8		319.0
Sludge	51,369.0		12,782.6	23,086.2	2,664.7	12,835.5		3,007.0	9,669.2	1.3	158.0
Oil waste	38,894.8	4,500.1	11,153.2	11,655.9		11,585.5		4,441.7	5,770.3	1,290.1	83.4
Waste acid	7,962.1		0.6	6,153.4	692.6	1,115.5		719.2	237.6	125.8	32.9
Waste alkali	53,155.1	2,943.4	39.0	37,778.6		12,394.1		5,574.2	5,474.6	1,267.3	77.9
Waste plastic	4,880.5		150.0	747.1		3,983.4		426.6	2,917.9	81.8	557.1
Waste paper	1,117.2		46.9	833.0		237.3		28.1	240.0		0.1
Wood waste	1,174.3			142.7		1,031.6		30.5	548.8	445.9	6.4
Textile waste	43.3			29.0		14.3		12.2	2.1		
Animal and plant residues	11.8					11.8		11.8			
Metal waste	529.2			1.5		527.7		120.8	358.3		17.7
Glass and pottery waste	501.0					501.0		62.0	376.7		62.2
Slag											
Debris	679.1	7.0				672.1		376.2	151.0		143.9
Soot and dust	27.4		6.6			20.8					20.8
Total	165,011	7,450	24,179	80,427	3,357	49,597	0	14,810	30,094	3,212	1,479



Environmental Activities: Supplementary Data

Sharing Environmental Protection and Management Targets (Japan)

Unit Energy Consumption Indices (2015 = 100)

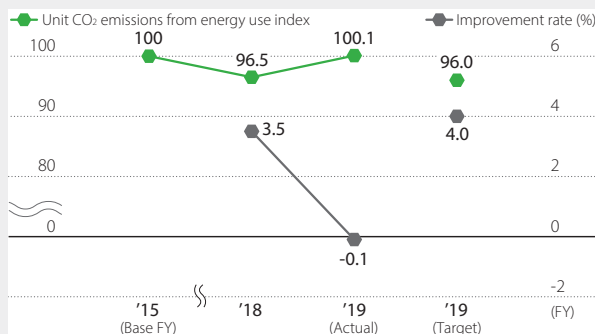


Improvement in Unit Energy Consumption Indices

Target Improve unit energy consumption Indices by at least 1% annually on average.

Results Unit energy consumption indices in fiscal 2019 worsened by 1.2% compared with fiscal 2015, failing to achieve the target.

Unit CO2 Emissions from Energy Use Indices (2015 = 100)

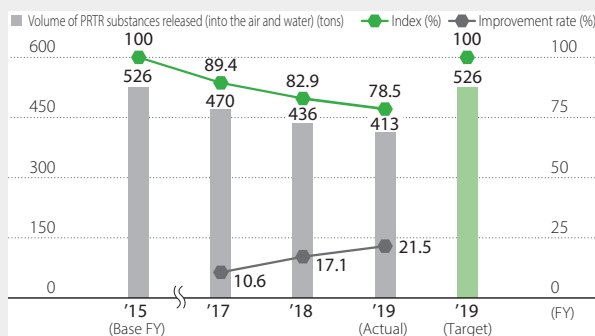


Improvement in Unit CO2 Emissions from Energy Use Indices

Target Improve unit CO2 emissions Indices by at least 1% annually on average.

Results Unit CO2 emission indices in fiscal 2019 worsened by 0.1% compared with fiscal 2015, failing to achieve the target.

Volume of PRTR Substances Released (into the Air and Water) and PRTR Substance Emissions Indices (2015 = 100)

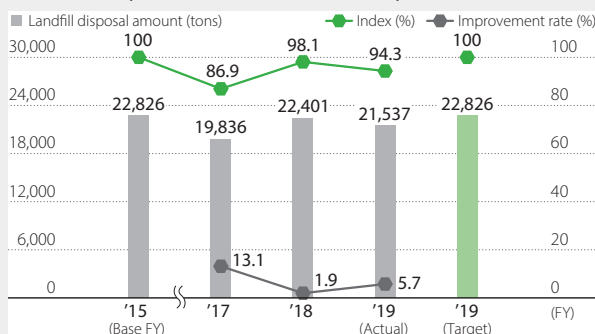


Reduction of Volume of PRTR Substances Released

Target Maintain the total volume of PRTR substances released (into the air and water) at or below fiscal 2015 levels.

Results The total volume in fiscal 2019 was reduced by 21.5% compared with fiscal 2015, achieving the target.

Landfill Disposal Amount and Landfill Disposal Indices (2015 = 100)



Reduction of landfill disposal amount

Target Maintain landfill disposal amount at or below fiscal 2015 levels.

Results The amount in fiscal 2019 was reduced by 5.7% compared with fiscal 2015, achieving the target.

Note: Sumitomo Chemical and the 15 Group companies in Japan listed below are included in the boundary of calculation.

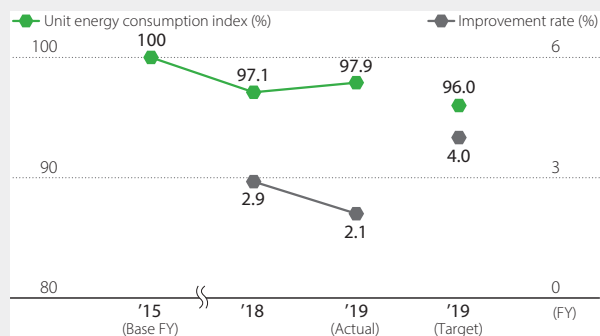
Sumika-Kakoushi Co., Ltd.; Sumika Color Co., Ltd.; Sumika Plastech Co., Ltd.; Nippon A&L Inc.; Asahi Chemical Co., Ltd.; Ceratec Co., Ltd.; Sumika Assembly Techno Co., Ltd.; SanTerra Co., Ltd.; Sumika Agro Manufacturing Co., Ltd.; SC Environmental Science Co., Ltd.; Sumika Agrotech Co., Ltd.; Sumitomo Chemical Garden Products Inc.; Sumika Polycarbonate Limited; Nihon Medi-Physics Co., Ltd.; Sumitomo Joint Electric Power Co., Ltd.



Environmental Activities: Supplementary Data

Sharing Environmental Protection and Management Targets (Overseas)

Unit Energy Consumption Indices (2015 = 100)



Improvement in Unit Energy Consumption Indices

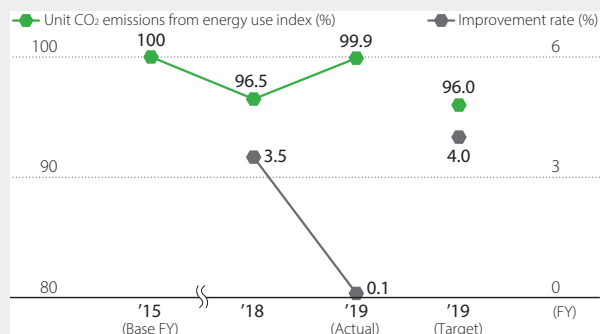
Target

Improve unit energy consumption Indices by at least 1% annually on average.

Results

Unit energy consumption indices in fiscal 2019 improved by 2.1% compared with fiscal 2015, failing to achieve the target.

Unit CO₂ Emissions from Energy Use Indices (2015 = 100)



Improvement in Unit CO₂ Emissions from Energy Use Indices

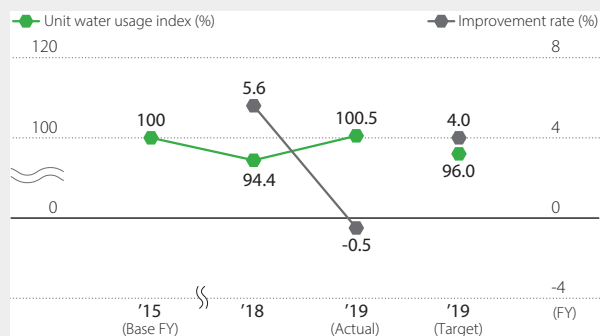
Target

Improve unit CO₂ emissions Indices by at least 1% annually on average.

Results

Unit CO₂ emission indices in fiscal 2019 improved by 0.1% compared with fiscal 2015, failing to achieve the target.

Unit Water Usage Indices (2015 = 100)



Improvement in Unit Water Usage Indices

Target

Improve unit water usage Indices by at least 1% annually on average.

Results

Usage in fiscal 2019 worsened by 0.5% compared with fiscal 2015, failing to achieve the target.

Note: The following 20 Group companies overseas are included in the boundary of calculation:

- | | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Singapore | • The Polyolefin Company (Singapore) Pte. Ltd. • Sumitomo Chemical Asia Pte Ltd |
| Thailand | • Sumipex (Thailand) Co., Ltd. • Bara Chemical Co., Ltd. • Sumika Polymer Compounds (Thailand) Co., Ltd. |
| China | • Dalian Sumika Chemphy Chemical Co., Ltd. • Sumika Electronic Materials (Wuxi) Co., Ltd.
• Sumika Electronic Materials (Hefei) Co., Ltd. • Sumika Huabei Electronic Materials (Beijing) Co., Ltd.
• Sumika Electronic Materials (Shanghai) Co., Ltd. • Sumika Electronic Materials (Xi'an) Co., Ltd.
• Sumika Polymer Compounds Dalian Co., Ltd. • Zhuhai Sumika Polymer Compounds Co., Ltd.
• Dalian Sumika Jingang Chemicals Co., Ltd. |
| Taiwan | • Sumika Technology Co., Ltd. • Sumipex Techsheet Co., Ltd. |
| India | • Sumitomo Chemical India Private Limited |
| South Korea | • Dongwoo Fine-Chem Co., Ltd. • SSLM Co., Ltd. |
| United States | • Sumitomo Chemical Advanced Technologies LLC |



Environmental Activities: Supplementary Data

Environmental Management System

Between 1997 and 2001, ISO 14001:1996 certification was obtained at all Works and continually maintained thereafter. Updated ISO 14001 certification was obtained later and all Works have been inspected on a continual basis to ensure the certification does not expire.

■ Acquisition of ISO 14001 Certification

1. Sumitomo Chemical (Acquisition Rate: 100%)

Works	Certificate Number	Certification Date
Ehime Works (including Ohe Works)	JCQA-E-018	April 1998
Chiba Works (including the SCIOCS Chiba Facility)	KHK-97ER, 004R6-05	June 1997
Osaka Works	JQA-E-90072	November 1997
Oita Works (Gifu Plant)	JCQA-E-0206	December 2000
Oita Works (Okayama Plant)	JCQA-E-0218	January 2001
Oita Works	JQA-E-90152	March 1998
Misawa Works	JQA-EM0355	March 1999

2. Group Companies In Japan

Sumika-Kakoushi Co., Ltd.	Sumika Agro Manufacturing Co., Ltd.
Sumika Color Co., Ltd.	Koei Chemical Co., Ltd.
Nippon A&L Inc.	Taoka Chemical Co., Ltd.
Asahi Chemical Co., Ltd.	Tanaka Chemical Corporation
Ceratec Co., Ltd.	SCIOCS COMPANY LIMITED
Sumika Assembly Techno Co., Ltd	Sumitomo Dainippon Pharma Co., Ltd.

3. Overseas Group Companies

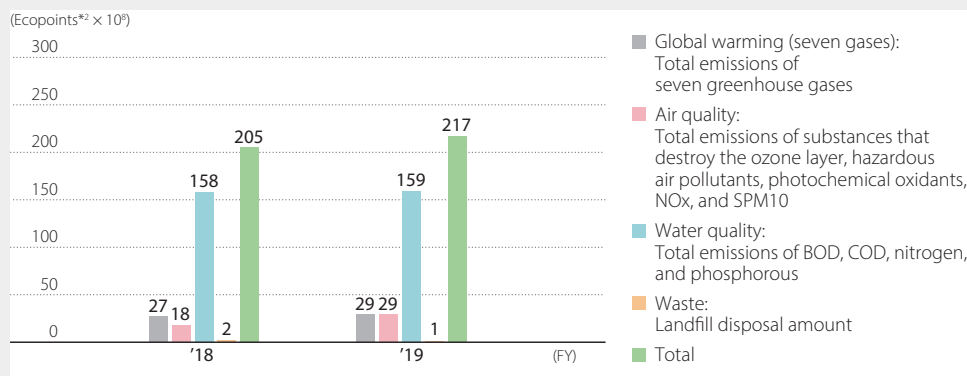
Dongwoo Fine-Chem Co., Ltd.
The Polyolefin Company (Singapore) Pte. Ltd.
Sumika Electronic Materials (Wuxi) Co., Ltd.
Sumitomo Chemical Asia Pte Ltd
Sumika Huabei Electronic Materials (Beijing) Co., Ltd.
Zhuhai Sumika Polymer Compounds Co., Ltd.
Sumika Polymer Compounds (Thailand) Co., Ltd.
Sumitomo Chemical Advanced Technologies LLC
Sumipex (Thailand) Co., Ltd.
Bara Chemical Co., Ltd.
SSLM Co., Ltd.
Sumika Electronic Materials (Xian) Co., Ltd.
Sumika Electronic Materials (Hefei) Co., Ltd.
Sumika Electronic Materials (Shanghai) Co., Ltd.
Sumika Polymer Compounds Dalian Co., Ltd.



Environmental Activities: Supplementary Data

Examining the Practical Use of Environmental Efficiency Indicators and Environmental Management Accounting Methods

Breakdown of Aggregate Values for Environmental Impact (Sumitomo Chemical) by JEPIX*1



Assessing the Environmental Impact of Each Group Company Using JEPIX

In fiscal 2019, as in the previous fiscal year, we undertook environmental impact assessments using JEPIX, in order to evaluate the effectiveness of this index as a strategic management indicator, and continued with relevant analyses.

Assessing the Environmental Impact of Each Product by LIME*3

For more practical use of LCA*4 data both internally and externally, we use LCA software (MilCA) from the Japan Environmental Management Association for Industry to undertake environmental impact assessments of our major products using the LIME method.

Trial Evaluation of Material Flow Cost Accounting (MFCA)*5

We are continuing to evaluate the effectiveness of this tool and also are performing examinations for the simplification and standardization of the method and procedures in order to foster their use. MFCA, which focuses on the loss of energy and resources, helps minimize loss and cost and reduces environmental impact.

*1 Environmental Policy Priorities Index for Japan (JEPIX):

This method, which employs a uniform single indicator called "Ecopoints" to evaluate environmental impact, is derived from the Swiss LCIA Eco Scarcity methodology. The current method evaluates the discrepancy between targets (e.g., laws and environmental policies) and actual conditions based on material flow data.

*2 Ecopoints:

An indicator for total environmental impact—the smaller the value, the lower the environmental impact.

*3 Life-cycle Impact assessment Method based on Endpoint modeling (LIME)

A life-cycle impact assessment method developed in Japan as a cornerstone for measuring Japan's environmental conditions.

*4 Life Cycle Assessment (LCA):

A method for evaluating the environmental impact of products and services throughout their life cycles.

*5 Material Flow Cost Accounting (MFCA):

An environmental cost accounting method that identifies input costs of materials, processing, electricity, fuel, and others, and compares them with the energy and resources lost in manufacturing processes.