Environmental Activities: Supplementary Data

1 Addressing Climate Change

Reducing Greenhouse Gas Emissions

■ Greenhouse Gas Emissions (All Seven Gases) (Sumitomo Chemical (All Facilities))

(Thousand tons of CO_2e)

		FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
CO_2	Energy sources	3,190	3,357	3,347	2,559	2,405	2,454	2,543
	From other than energy use	62	63	65	55	50	93	155
Methane (CH_4)		—	—	—	—	—	—	—
Nitrous oxide (N_2O)		67	63	76	65	45	35	23
Hydrofluorocarbon (HFC)		—	—	—	—	—	—	—
Perfluorocarbon (PFC)		—	—	—	—	—	—	—
Sulfur hexafluoride (SF_6)		—	—	—	—	—	—	—
Nitrogen trifluoride (NF_3)		—	—	—	—	—	—	—

Notes: • CH_4, HFC, PFC, SF_6, and NF_3 are outside the scope of reporting.
• Calculated based on the Act on the Rational Use of Energy and the Act on Promotion of Global Warming Countermeasures.

Environmental Activities: Supplementary Data

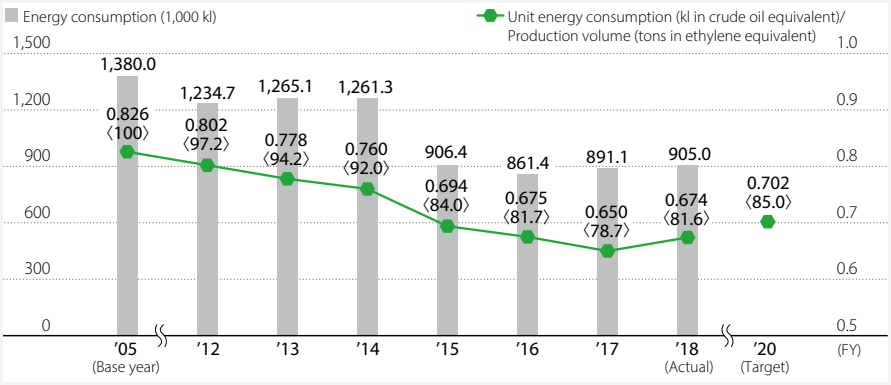
Energy Saving

Breakdown of Unit Energy Consumption (Sumitomo Chemical (All Works))

	Energy consumption (1,000 kl in crude oil equivalent) (a)	Production (1,000 tons in ethylene equivalent) (b)	Unit energy consumption (a/b)
Ehime Works	463.8	728.9	0.636
Chiba Works	312.0	371.4	0.840
Osaka Works	23.6	17.9	1.318
Oita Works*	60.3	62.8	0.960
Misawa Works	10.6	8.6	1.233
Ohe Works	34.8	153.1	0.227
Total	905.1	1,342.7	0.674

Note: Calculated based on the Act on the Rational Use of Energy and the Act on Promotion of Global Warming Countermeasures.
* Data for the Oita Works includes data for the Gifu and Okayama plants.

Energy Consumption and Unit Energy Consumption (Sumitomo Chemical (All Works))



Note: Calculated based on the Act on the Rational Use of Energy and the Act on Promotion of Global Warming Countermeasures.

Target

Improve unit energy consumption for fiscal 2020 by 15% compared with fiscal 2005.

Results

Energy consumption totaled 905 thousand kl in crude oil equivalent in fiscal 2018. In fiscal 2018, unit energy consumption worsened 3.7% compared with fiscal 2017 and improved 18.4% compared with fiscal 2005.

Energy Consumption and CO_2 Emissions (Sumitomo Chemical and Group Companies in Japan (All Facilities))

	Energy consumption (1,000 kl in crude oil equivalent)	CO_2 emissions from energy use (1,000 tons)
Sumitomo Chemical	918	2,543
Works	905	2,516
Non-manufacturing sites including the Head Offices and Research Laboratories	13	27
Sumitomo Chemical and Group companies in Japan	1,677	4,966
Works	1,651	4,911
Non-manufacturing sites including the Head Offices and Research Laboratories	25	55

Notes: • Calculated based on the Act on the Rational Use of Energy and the Act on Promotion of Global Warming Countermeasures.
• The boundary of calculation covers the same participating companies listed on page 3.

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).

Environmental Performance (Fiscal 2016–2018), Boundary: Sumitomo Chemical and Group Companies in Japan

INPUT Energy and Resources

Water

(Million tons)

	FY2016	FY2017	FY2018★
Industrial water	66.1	68.8	63.3
Drinking water	0.8	0.9	0.8
Seawater	888.4	926.9	848.1
Groundwater	16.7	17.6	22.7
Other water	2.7	2.5	2.4

Energy

Calculated as kl of crude oil

(Thousand kl)

	FY2016	FY2017	FY2018★
Fuel, heat, and electricity*1	1,750	1,837	1,690

Exhaustible Resources

(Thousand tons)

	FY2016	FY2017	FY2018
Hydrocarbon compounds	1,779	1,835	1,676
Metals (excluding rare metals)*2	116	120	121
Minor metals*3	0.17	10.17	13.54

PCB/CFCs under Secure Storage

	FY2016	FY2017	FY2018
No. of electrical devices containing high concentrations of PCBs*4	61	58	10
PCB volume (pure equivalent) (kl)*4	1.0	1.0	0.1
No. of refrigeration units using specified CFCs as a coolant	45	48	32
No. of refrigeration units using HCFCs as a coolant	235	262	272

Note: The number of companies included in the boundary of calculation for the environmental performance data on page 90 is as follows for each year.
FY2016: Sumitomo Chemical and Group companies in Japan: 19 companies
FY2017: Sumitomo Chemical and Group companies in Japan: 21 companies
FY2018: 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 167 "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

★: Assured by an independent assurance provider

OUTPUT Product Manufacturing and Environmental Impact

Products

(Thousand tons)

	FY2016	FY2017	FY2018★
(Calculated on the basis of ethylene production)*1	1,517	2,602	2,490

Water Pollutant Emissions

(Tons)

		FY2016	FY2017	FY2018★
COD	Coastal waters/waterways	977	998	998
	Sewer systems	185	234	216
Phosphorus	Coastal waters/waterways	34	32	35
	Sewer systems	5	6	5
Nitrogen	Coastal waters/waterways	1,478	1,442	1,488
	Sewer systems	36	72	96
Substances subject to the PRTR Act*2, 3		52	45	13

Water Discharge

(Million tons)

	FY2016	FY2017	FY2018
Total amount of water discharge	953	987	911

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

Waste Materials

(Thousand tons)

	FY2016	FY2017	FY2018★
Waste emissions*4	255	261	244
Landfill*4	21	21	23
(Breakdown)			
On-site landfill	0	0	0
External landfill	21	21	23

Note: The number of companies included in the boundary of calculation for the environmental performance data on page 91 is as follows for each year.
FY2016: Sumitomo Chemical and Group companies in Japan: 19 companies
FY2017: Sumitomo Chemical and Group companies in Japan: 21 companies
FY2018: 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 Calculated based on the amount released into water/the air of each substance subject to the PRTR Act. From fiscal 2018, we revised the calculation method for specified substances released into water. Using the previous method, water pollutant emissions for Sumitomo Chemical and Group companies in Japan would be 43 tons.
*3 From fiscal 2018, as a result of revising the calculation method for specified substances released into water, water pollutant emissions decreased compared with the previous method.
*4 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. Moreover, although the amount of waste emissions from Sumitomo Chemical and Group companies in Japan includes the amount of waste reduced at Sumitomo Chemical's facilities, the reduced amount is insignificant.

Environmental Activities: Supplementary Data

★: Assured by an independent assurance provider

Atmospheric Emissions

(Thousand tons of CO_2e)

	FY2016	FY2017	FY2018★
Greenhouse gases (seven gases)*1	5,509	6,432	5,957
Emissions from energy use (CO_2)	5,323	5,611	5,172
CO_2 emissions from other than energy use	61	711	684
N_2O	125	110	101
HFC*2	—	—	—
PFC*2	—	—	—
CH_4*2	—	—	—
SF_6*2	—	—	—
NF_3*2	—	—	—

(Tons)

	FY2016	FY2017	FY2018★
Others			
NOx	4,736	4,703	4,326
SOx	4,920	5,023	5,152
Soot and dust	166	247	222
Substances subject to the PRTR Act*3	454	438	458

Note: The number of companies included in the boundary of calculation for the environmental performance data on page 92 is as follows for each year.
FY2016: Sumitomo Chemical and Group companies in Japan: 19 companies
FY2017: Sumitomo Chemical and Group companies in Japan: 21 companies
FY2018: Sumitomo Chemical and Group companies in Japan: 21 companies

*1 From fiscal 2017, the greenhouse gas (all seven gases) indices were calculated using the GHG Protocol for greenhouse gas emissions (refer to page 167 "Calculation Standards for Environmental and Social Data Indicators") for principal consolidated Group companies in Japan, which account for up to 99.8% of consolidated net sales.
- Having adopted the GHG Protocol standards for our GHG emission disclosures, we now include the following data that was previously excluded from calculations: CO_2 emissions from energy 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); CO_2 emissions from energy use attributable to Sumitomo Chemical's non-production sites; and CO_2 emissions from non-energy sources not included in the scope of the Act on Promotion of Global Warming Countermeasures. In addition, from fiscal 2018, we include energy use attributable to the Group companies in Japan non-production sites.

*2 Outside the scope of reporting under the Act on Promotion of Global Warming Countermeasures.
*3 Calculated based on the amount released into water/the air of each substance subject to the PRTR Act.

Compliance with Environmental Laws and Regulations

(Yen)

	FY2016	FY2017	FY2018
Total fines	0	0	0

Note: **Sumitomo Chemical and Group companies in Japan are included in the boundary of calculation.**
[The production sites of the 21 Group companies in the boundary are listed below]
Sumika-Kakoushi Co., Ltd.; Sumika Color Co., Ltd.; Sumika Plastech Co., Ltd.; Nippon A&L Inc.; Nihon Methacryl Monomer Co., Ltd.; 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.; Nihon Medi-Physics Co., Ltd.; Sumitomo Joint Electric Power Co., Ltd.; Koei Chemical Co., Ltd.; Taoka Chemical Co., Ltd.; Tanaka Chemical Corporation; SCIOCS COMPANY LIMITED; Sumitomo Dainippon Pharma Co., Ltd.; and SN Kasei Co., Ltd.

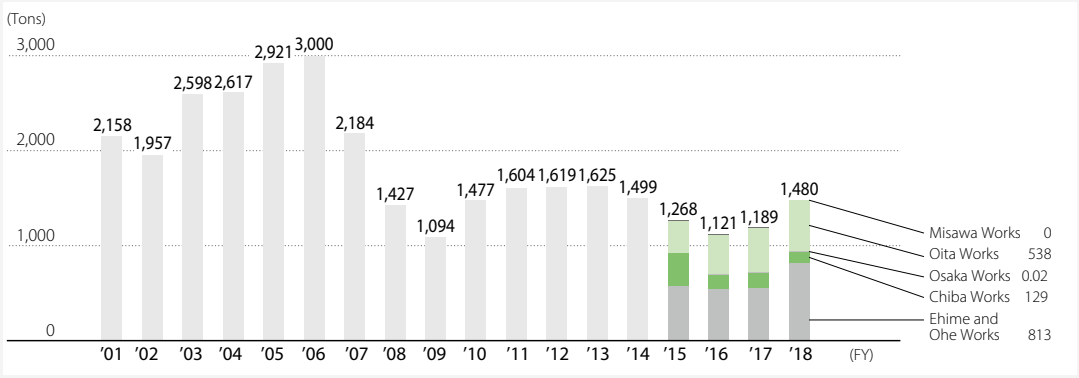
Environmental Activities: Supplementary Data

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

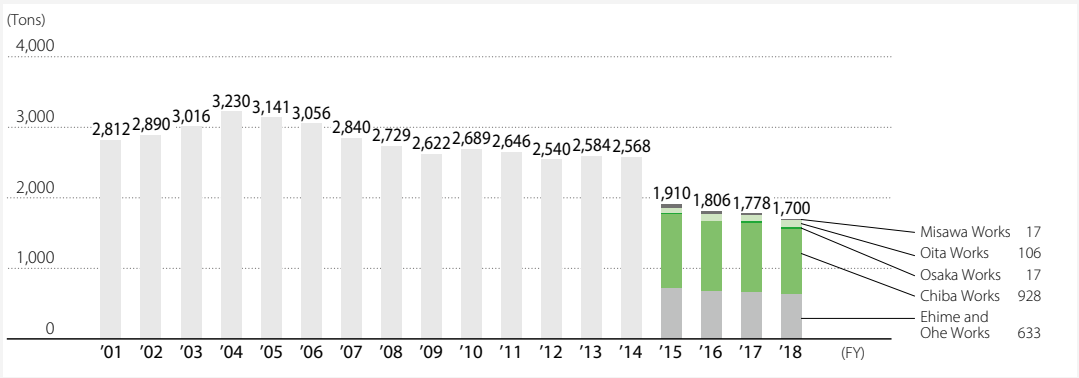
In 1970, Sumitomo Chemical achieved a marked reduction in the release of SOx, NOx, soot, and dust into the atmosphere, and continued to maintain low levels of emissions from 1980 to the present. Furthermore, the Company has concluded cooperative agreements with local municipal governments at each of 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.

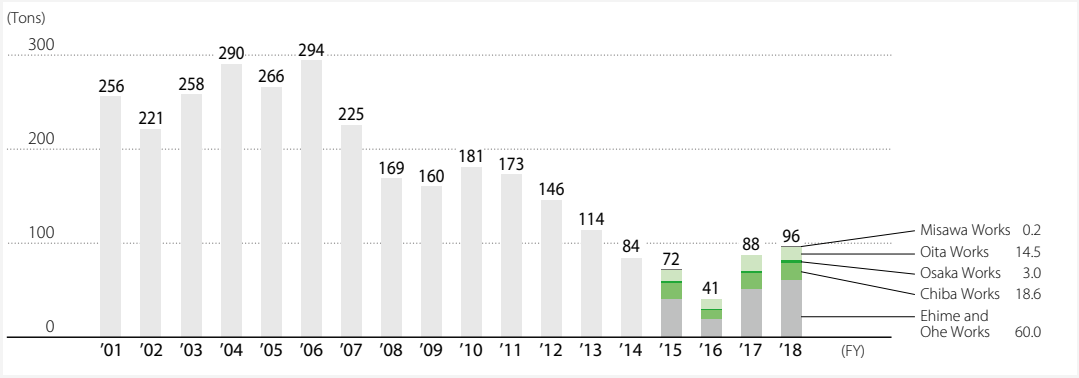
SOx Emissions (Sumitomo Chemical (All Works))



NOx Emissions (Sumitomo Chemical (All Works))



Soot and Dust Emissions (Sumitomo Chemical (All Works))



Target	Continue to sustain levels below voluntary control standard values.

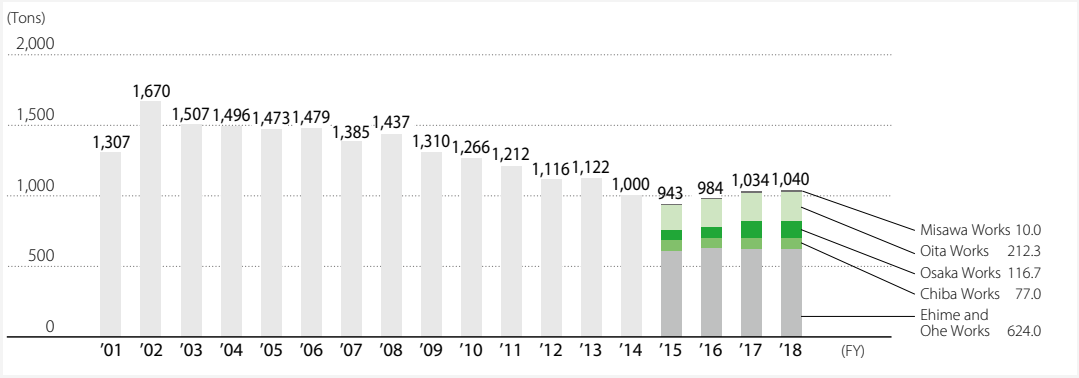
Environmental Activities: Supplementary Data

Water Emissions of COD, Nitrogen, and Phosphorus

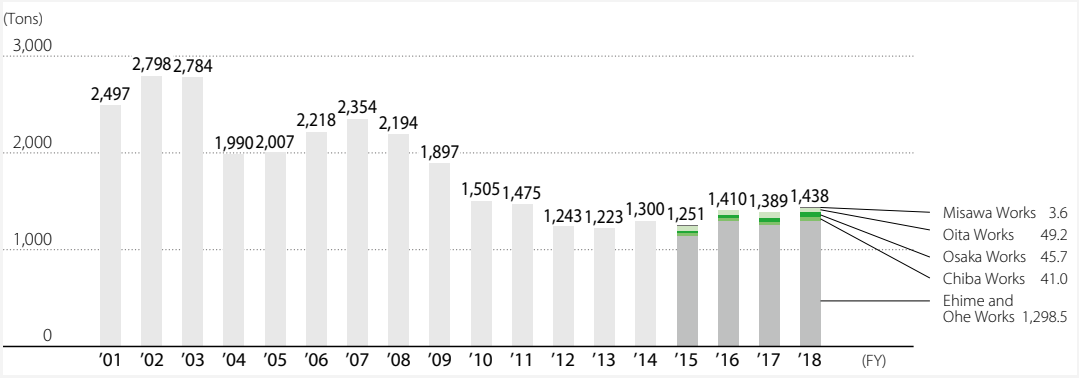
A number of measures have been implemented to cut emissions, in line with fifth-generation Water Quality Standards, and emissions of COD, nitrogen, and phosphorus into waterways have been significantly reduced since fiscal 2004. Sumitomo Chemical has also concluded cooperative agreements with local municipal 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.

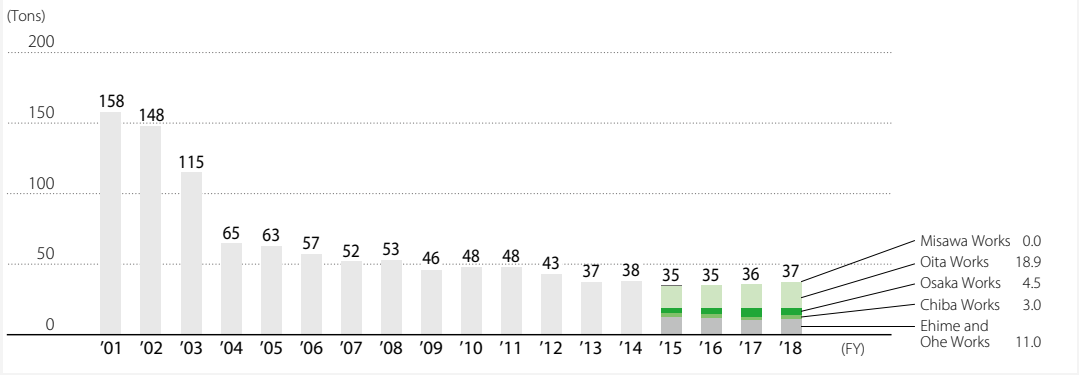
COD Emissions (water emissions include water discharge to sewage systems) (Sumitomo Chemical (All Works))



Nitrogen Emissions (Sumitomo Chemical (All Works))



Phosphorus Emissions (Sumitomo Chemical (All Works))



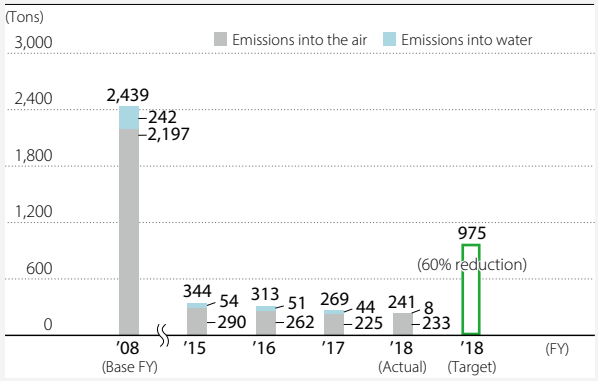
Target	Continue to sustain levels below voluntary control standard values.

Environmental Activities: Supplementary Data

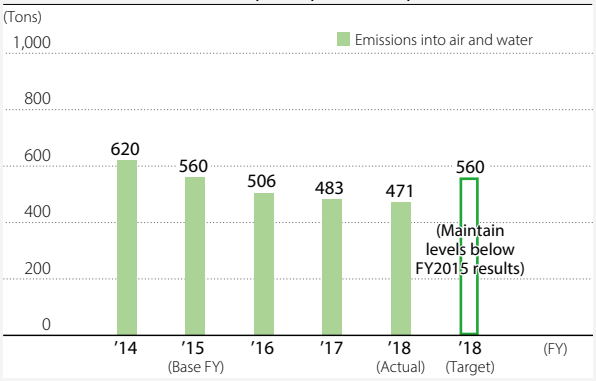
Addressing PRTR and VOCs

Trends in Emissions of Substances Subject to the PRTR Act

Sumitomo Chemical (All Works)



Sumitomo Chemical and Group Companies in Japan



Note: From fiscal 2018, we revised the calculation method for specified substances released into water. Using the previous method, emissions into water for Sumitomo Chemical (all Works) would be 38 tons, and emissions into air and water for Sumitomo Chemical and Group companies in Japan would be 501 tons.

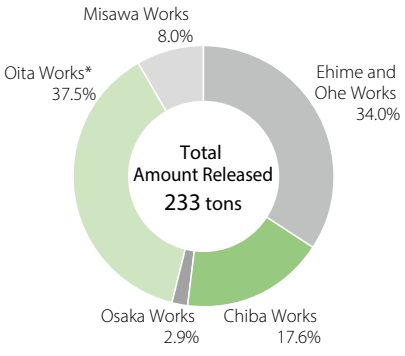
Release and Transfer of PRTR Substances (Sumitomo Chemical and Group Companies in Japan)

(Tons)

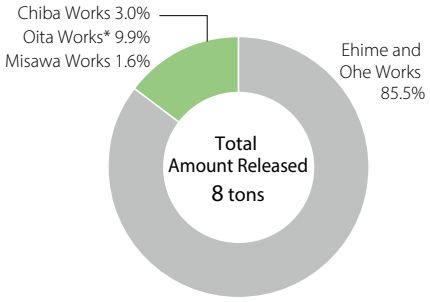
	Released			Transferred		
	Air	Water	Subtotal	Sewage	Waste	Subtotal
PRTR substances						
Sumitomo Chemical (118 substances)	233	8	241	5	4,616	4,621
Sumitomo Chemical and Group companies in Japan	458	13	471	9	7,676	7,684

PRTR Substances Released by Works (Sumitomo Chemical (All Works))

Released into the Air
(PRTR Substances)



Released into Waterways
(PRTR Substances)

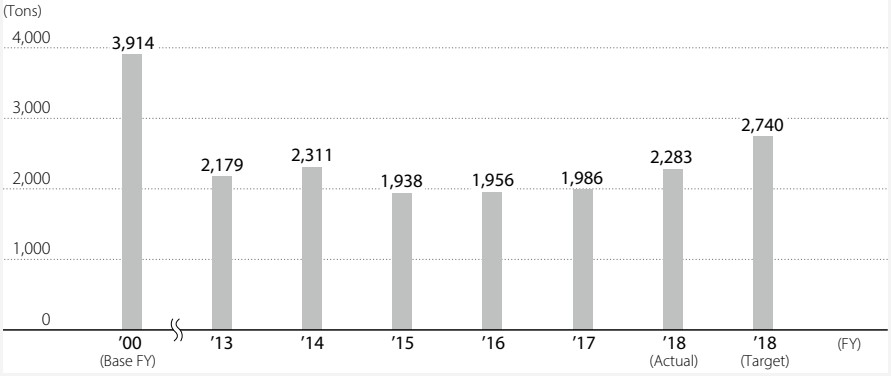


* Data for the Oita Works includes data for the Gifu and Okayama plants.

Target	Reduce the total release of PRTR substances by 60% compared with fiscal 2008 by fiscal 2018.
Results	Reduced the total release of PRTR substances to 241 tons, by 90.1%, compared with fiscal 2008 by fiscal 2018, achieving the target.

Environmental Activities: Supplementary Data

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



Target	Maintain a 30% reduction in VOC emissions compared with fiscal 2000.
Results	Reduced emissions by 2,283 tons, or 41.7%, compared with fiscal 2000 by fiscal 2018, achieving the target.

Prevention of Ozone Layer Depletion

Number of Refrigeration Units That Use Specified CFCs and HCFCs as Coolants (As of the End of Fiscal 2018)

(Number of units)

	Sumitomo Chemical	Sumitomo Chemical and Group companies in Japan
CFC11	3	3
CFC12	1	26
CFC113	0	1
CFC114	0	0
CFC115	0	2
HCFC22	60	249
HCFC123	13	21
HCFC142b	0	2

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)

Release and Transfer of PRTR Substances in Fiscal 2018 (Sumitomo Chemical (All Works))

(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	3.5	0.0	0.0	3.5	<0.1	93.2	93.3
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	1.2	0.0	0.0	0.0	1.2	0.0	0.0	0.0
4	Acrylonitrile	4.9	0.0	0.0	0.0	4.9	0.0	0.0	0.0
5	Acrolein	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Acetaldehyde	0.3	<0.1	0.0	0.0	0.3	0.0	0.0	0.0
7	Acetonitrile	2.5	0.0	0.0	0.0	2.5	0.0	14.9	14.9
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	49.5	49.5
10	2-Aminoethanol	<0.1	0.2	0.0	0.0	0.2	0.0	27.7	27.7
11	m-Aminophenol	0.0	<0.1	0.0	0.0	<0.1	0.0	3.8	3.8
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	3.1	3.1
14	Isobutyraldehyde	0.6	0.0	0.0	0.0	0.6	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	3.2	<0.1	0.0	0.0	3.3	0.1	75.8	75.9
18	Epichlorohydrin	0.4	0.0	0.0	0.0	0.4	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	0.3	1.3	0.0	0.0	1.5	0.0	0.0	0.0
22	Xylene	4.0	<0.1	0.0	0.0	4.0	0.1	81.2	81.3
23	Quinoline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	Cumene	3.3	<0.1	0.0	0.0	3.3	0.0	0.0	0.0
25	Cresol	<0.1	0.0	0.0	0.0	<0.1	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	Chlorodifluoromethane (also known as HCFC-22)	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0
31	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
32	3-Chloropropene (also known as allyl chloride)	1.7	0.0	0.0	0.0	1.7	0.0	0.0	0.0
33	Chlorobenzene	2.9	<0.1	0.0	0.0	2.9	0.0	126.4	126.4
34	Chloroform	<0.1	0.0	0.0	0.0	<0.1	<0.1	325.1	325.1
35	Cobalt and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	Vinyl acetate	13.9	<0.1	0.0	0.0	13.9	0.0	0.0	0.0
37	Salicyl aldehyde	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 benthiocarb)	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	119.0	119.0
42	Cyclohexylamine	0.0	<0.1	0.0	0.0	<0.1	0.0	2.5	2.5
43	1,2-dichloroethane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	1,1-Dichloroethylene (also known as vinylidene chloride)	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
45	Cis-1,2-dichloroethylene	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
46	2,2-Dichloro-1,1,1- trifluoroethane (also known as HCFC-123)	1.6	0.0	0.0	0.0	1.6	0.0	0.0	0.0
47	1,2-Dichloropropane	<0.1	0.0	0.0	0.0	<0.1	0.0	400.0	400.0
48	1,3-Dichloropropene (also known as D-D)	0.5	0.0	0.0	0.0	0.5	0.0	260.0	260.0
49	Dichlorobenzene	0.0	0.0	0.0	0.0	0.0	0.0	44.2	44.2
50	Dichloromethane (also known as methylene chloride)	4.4	0.0	0.0	0.0	4.4	<0.1	36.3	36.3
51	Dicyclopentadiene	<0.1	0.0	0.0	0.0	<0.1	0.0	5.3	5.3
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	0.5	0.0	0.0	0.5	0.0	12.2	12.2
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	<0.1	0.0	0.0	0.0	<0.1	0.0	7.3	7.3
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	2.0	2.0
59	Dimethylamine	0.0	0.1	0.0	0.0	0.1	0.0	1.6	1.6
60	N,N-Dimethylformamide	<0.1	<0.1	0.0	0.0	<0.1	0.0	117.4	117.4
61	Mercury and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62	Styrene	2.2	0.0	0.0	0.0	2.2	0.0	2.2	2.2
63	Selenium and its compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
64	Dioxins	3.5	5.0	0.0	0.0	8.6	0.1	5.1	5.2
65	Thiourea	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
66	O,O-Dimethyl O-(3-methyl-4- nitrophenyl) phosphorothioate (also known as Fenitrothion or MEP)	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
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	<0.1	0.0	<0.1
70	Terephthalic acid	0.0	0.0	0.0	0.0	0.0	0.0	394.0	394.0
71	Water-soluble copper salts (excluding complex salts)	0.0	<0.1	0.0	0.0	<0.1	0.4	0.0	0.4
72	Triethylamine	1.1	0.6	0.0	0.0	1.7	0.8	51.0	51.8
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	<0.1	0.0	<0.1
75	Trichloroethylene	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
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	Trichlorofluoromethane (also known as CFC-11)	0.7	0.0	0.0	0.0	0.7	0.0	0.0	0.0
78	1,2,3-Trichloropropane	<0.1	0.0	0.0	0.0	<0.1	0.0	9.3	9.3
79	1,2,4-Trimethylbenzene	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0
80	Toluidine	0.0	0.0	0.0	0.0	0.0	0.0	7.3	7.3
81	Toluene	140.5	0.3	0.0	0.0	140.8	0.4	1,854.2	1,854.6
82	Naphthalene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	Lead compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
84	Nickel compounds	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
85	Nitrobenzene	0.6	0.6	0.0	0.0	1.2	0.0	44.3	44.3
86	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
87	Arsenic and its inorganic compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
88	Hydrazine	<0.1	<0.1	0.0	0.0	<0.1	0.0	11.7	11.7
89	Hydroquinone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	Pyridine	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
91	1,3-Butadiene	0.0	0.0	0.0	0.0	0.0	0.0	3.4	3.4
92	Bis(2-ethylhexyl)phthalate	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.6
93	tert-Butyl hydroperoxide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94	2-tert-Butyl-5-methylphenol	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
95	Hydrogen fluoride and its water-soluble salts	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
96	2-Propyn-1-ol	<0.1	0.0	0.0	0.0	<0.1	0.0	217.4	217.4
97	2-Bromopropane	0.0	0.0	0.0	0.0	0.0	0.0	4.7	4.7
98	Hexadecyltrimethylammonium chloride	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
99	n-Hexane	27.2	<0.1	0.0	0.0	27.3	0.0	115.5	115.5
100	Water-soluble salts of peroxydisulfuric acid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
101	Benzyl chloride	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
102	Benzaldehyde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
103	Benzene	0.3	0.2	0.0	0.0	0.5	0.0	0.0	0.0
104	Boron compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
105	Polychlorinated biphenyls (also known as PCBs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
106	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
107	Formaldehyde	<0.1	<0.1	0.0	0.0	<0.1	2.5	0.0	2.5
108	Manganese and its compounds	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
109	Phthalic anhydride	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	Maleic anhydride	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
111	2,3-Epoxypropyl methacrylate	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0
112	Methyl methacrylate	8.8	0.0	0.0	0.0	8.8	0.0	43.7	43.7
113	(Z)-2′-Methylacetophenone= 4,6-dimethyl-2-pyrimidinyl hydrazone (also known as Ferimzone)	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0
114	Methylamine	0.3	0.0	0.0	0.0	0.3	0.0	2.1	2.1
115	3-Methylthiopropanal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116	Methylnaphthalene	2.6	0.0	0.0	0.0	2.6	0.0	0.0	0.0
117	Morpholine	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0
118	Triphenyl phosphate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		232.7	8.5	0.0	0.0	241.1	4.9	4,616.4	4,621.3

Environmental Activities: Supplementary Data

Industrial Waste Reduction

PCB Waste (Sumitomo Chemical and Group Companies in Japan (All Works)

Storage and Control of High Concentrations of PCB Waste (As of the End of Fiscal 2018)

	Number of units of PCB waste			Volume of PCBs (kl)
	Total	Storage	Usage	
Sumitomo Chemical	0	0	0	0
Sumitomo Chemical and Group Companies in Japan	10	10	0	0.06

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.

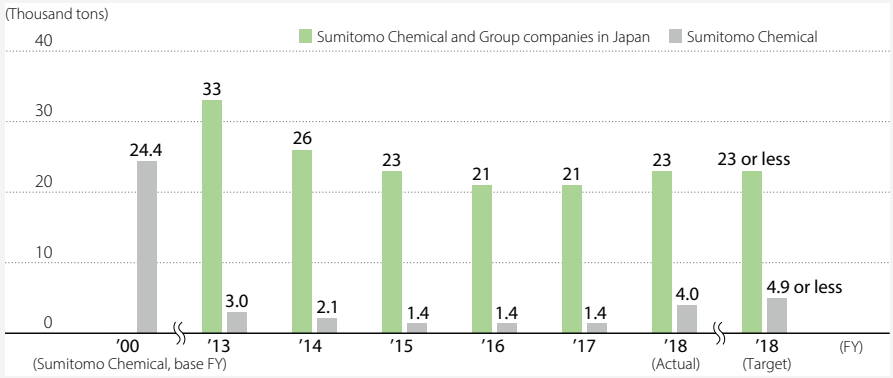
Results

As of the end of fiscal 2018, Sumitomo Chemical has completed treatment of the high-concentration PCB waste that had been in storage or use.

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. Sumitomo Chemical has completed treatment of all PCB waste ahead of the deadline specified under the Act.

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

Landfill Disposal Amount



Target

We aim to maintain a landfill disposal amount of less than the fiscal 2000 level of 4,900 tons for Sumitomo Chemical and 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 (All Works))

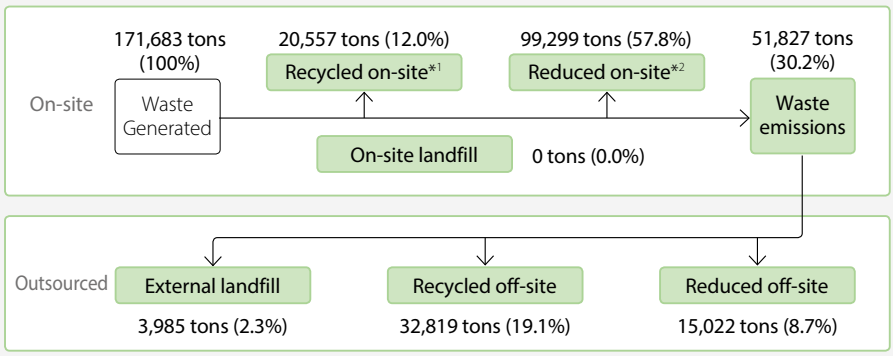
	Number of manifests issued	Number of manifests digitized	Digitization rate (%)
FY2013	19,389	15,329	79
FY2014	18,662	14,930	80
FY2015	18,973	16,337	86
FY2016	19,868	19,594	99
FY2017	19,858	19,585	99
FY2018	20,598	20,355	99

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

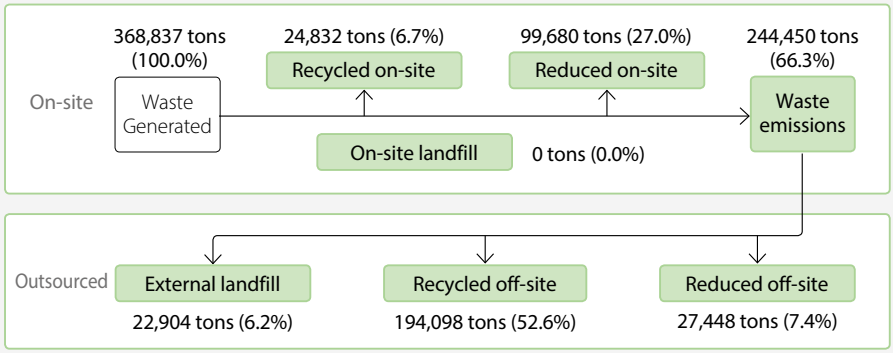
Environmental Activities: Supplementary Data

Waste Disposal Flow Chart and Results

(Sumitomo Chemical (All Works))



(Sumitomo Chemical and Group Companies in Japan (All Works))



*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 Results by Item in connection with the Disposal of Waste (Sumitomo Chemical (All Works))

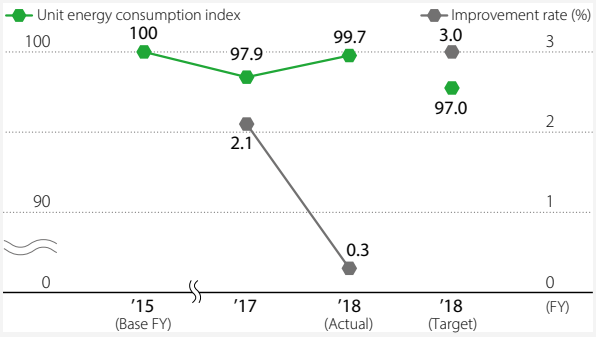
(Tons)

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	4,959.4			0.0		4,959.4			4,782.0		177.4
Sludge	52,846.5		3,553.4	34,126.6	2,724.9	12,441.6		2,976.0	9,265.6	0.2	199.8
Oil waste	39,145.5	4,069.2	8,348.0	15,995.4		10,732.9		4,072.0	5,550.2	1,061.4	49.2
Waste acid	7,820.4		30.9	5,511.4	774.0	1,504.0		1,199.1	204.1	0.4	100.4
Waste alkali	54,390.4	8.0	4,299.8	38,150.3		11,932.3		5,347.5	5,331.4	1,184.9	68.7
Waste plastic	5,495.3		159.9	1,101.9		4,233.5		464.7	3,130.2	98.6	539.3
Waste paper	1,113.3		78.5	809.1		225.8		17.7	207.8		0.2
Wood waste	995.9			73.0		922.9		36.2	614.7	264.2	7.8
Textile waste	46.8			32.0		14.8		12.6	2.2		
Animal and plant residues	9.4					9.4		9.4			
Metal waste	878.2			0.4		877.8		437.5	423.1		17.2
Glass and pottery waste	666.9					666.9		155.3	471.1		40.6
Slag											
Debris	682.7					682.7		294.3	227.0		161.5
Soot and dust	30.7		9.0			21.7					21.7
Asbestos waste	2,601.5					2,601.5					2,601.5
Total	171,683.0	4,077.2	16,479.6	95,800.1	3,499.0	51,827.2	0.0	15,022.3	30,209.3	2,609.8	3,985.3

Environmental Activities: Supplementary Data

Sharing Environmental Protection and Management Targets (Japan)

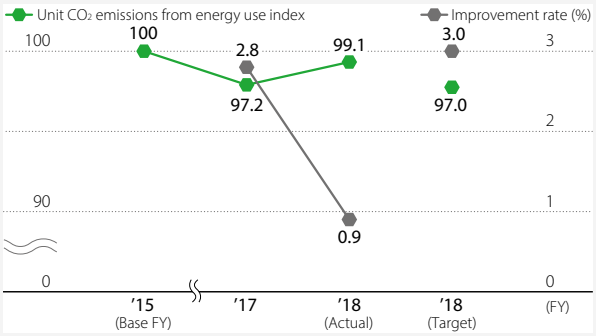
Unit Energy Consumption Indices (2015 = 100)



Improvement in Unit Energy Consumption

Target	Improve unit energy consumption by at least 1% annually on average.
Results	Unit energy consumption in fiscal 2018 improved by 0.3% compared with fiscal 2015, failing to achieve the target.

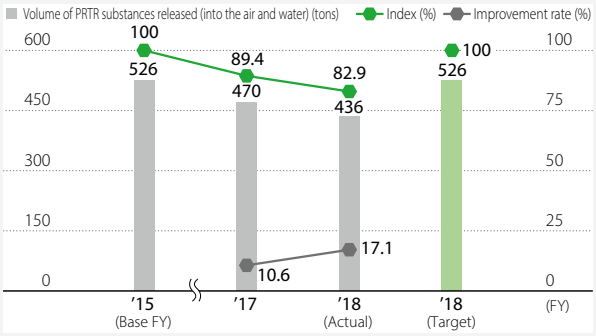
Unit CO_2 Emissions from Energy Use Indices (2015 = 100)



Improvement in Unit CO_2 Emissions from Energy Use

Target	Improve unit CO_2 emissions by at least 1% annually on average.
Results	Unit CO_2 emissions in fiscal 2018 improved by 0.9% compared with fiscal 2015, failing to achieve the target.

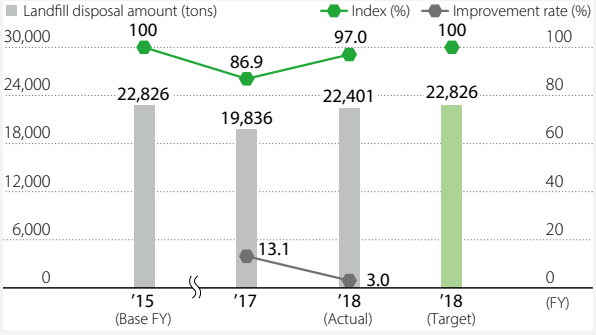
Volume of PRTR Substances Released (into the Air and Water) and PRTR Substance Emissions Indices (2015 = 100)



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 2018 was reduced by 17.1% 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 2018 was reduced by 3.0% compared with fiscal 2015, achieving the target.

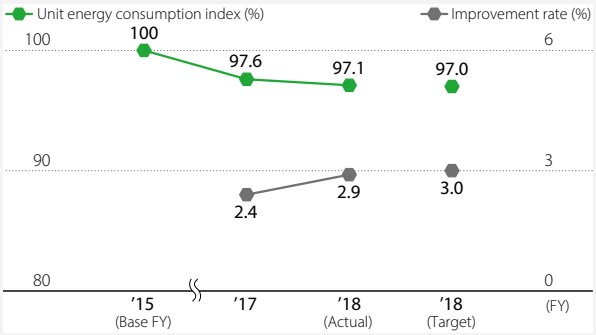
Note: **Sumitomo Chemical and the 15 Group companies listed below are included in the boundary of calculation.**

Sumika-Kakoushi Co., Ltd.; Sumika Color Co., Ltd.; Sumika Plastech Co., Ltd.; Nippon A&L Inc.; Nihon Methacryl Monomer Co., Ltd.; 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.; Nihon Medi-Physics Co., Ltd.; Sumitomo Joint Electric Power Co., Ltd.

Environmental Activities: Supplementary Data

Sharing Environmental Protection and Management Targets (Overseas)

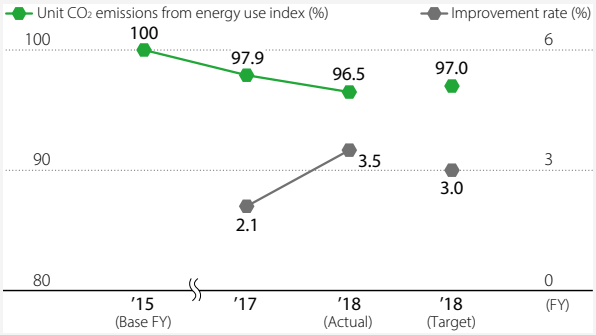
Unit Energy Consumption Indices (2015 = 100)



Improvement in Unit Energy Consumption

Target	Improve unit energy consumption by at least 1% annually on average.
Results	Consumption in fiscal 2018 improved by 2.9% compared with fiscal 2015, failing to achieve the target.

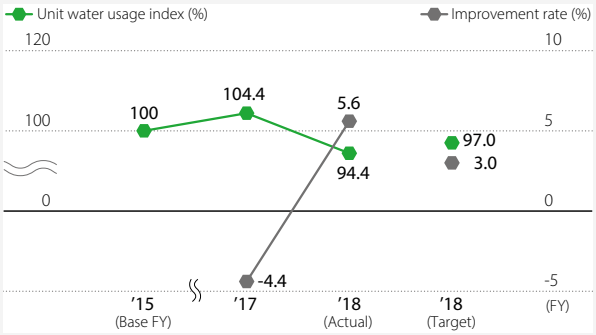
Unit CO_2 Emissions from Energy Use Indices (2015 = 100)



Improvement in Unit CO_2 Emissions

Target	Improve unit CO_2 emissions by at least 1% annually on average.
Results	Emissions in fiscal 2018 improved by 3.5% compared with fiscal 2015, achieving the target.

Unit Water Usage Indices (2015 = 100)



Improvement in Unit Water Usage

Target	Improve unit water usage by at least 1% annually on average.
Results	Usage in fiscal 2018 improved by 5.6% compared with fiscal 2015, achieving 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 (Sumitomo Chemical (All Works) (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

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, 2018 to March 31, 2019
(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 increased year on year by 8.2 billion yen, and consolidated expenses increased by 5.4 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	FY2017				FY2018			
			Non-Consolidated		Consolidated		Non-Consolidated		Consolidated	
			Investment	Expenses	Investment	Expenses	Investment	Expenses	Investment	Expenses
Facility Area Costs			1.6	16.8	3.5	28.2	5.3	18.7	11.7	30.9
Breakdown	Pollution Prevention Costs	Prevention of air pollution, water pollution, soil contamination, noise pollution, odors, ground subsidence, etc.	(1.2)	(11.8)	(2.6)	(16.5)	(4.9)	(13.6)	(7.9)	(18.5)
Breakdown	Global Environmental Protection Costs	Energy saving, prevention of global warming, ozone layer depletion, and other measures	(0.1)	(0.2)	(0.4)	(3.4)	(0)	(0.2)	(3.3)	(3.9)
Breakdown	Resource Recycling Costs	Resource saving, water saving and rainwater usage, waste reduction/disposal treatment, recycling, etc.	(0.3)	(4.8)	(0.5)	(8.3)	(0.4)	(4.9)	(0.5)	(8.5)
Upstream/ Downstream Costs		Green purchasing, recycling, recovery, remanufacturing and appropriate treatment of products, recycling costs associated with containers and packaging, environmentally friendly products and services, etc.	0	0	0	0.3	0	0	0	0.3
Administrative Costs		Costs associated with environmental education, environmental management systems, the monitoring and measuring of the environmental impact of business activities and products, environmental organization operations, etc.	0	0.7	0	1.3	0	0.7	0	1.4
R&D Costs		Development of products with attention to environmental safety, research into energy-saving processes, etc.	0.1	3.9	0.1	4.0	0.1	6.6	0.1	6.7
Social Activities Costs		Protection of the natural environment and enhancement of its scenic beauty and greenery, support for community initiatives aimed at environmental protection, support for environmental preservation groups, environment-related paid contributions and surcharges, etc.	0	0.5	0	0.8	0	0.5	0	0.7
Environmental Remediation Costs		Environmental rehabilitation of contaminated environments and other environmental damage, reserve funds to cover environmental recovery, etc.	0	0	0	0	0	0	0	0
Total			1.7	21.9	3.6	34.6	5.4	26.5	11.8	40.0

Environmental Activities: Supplementary Data

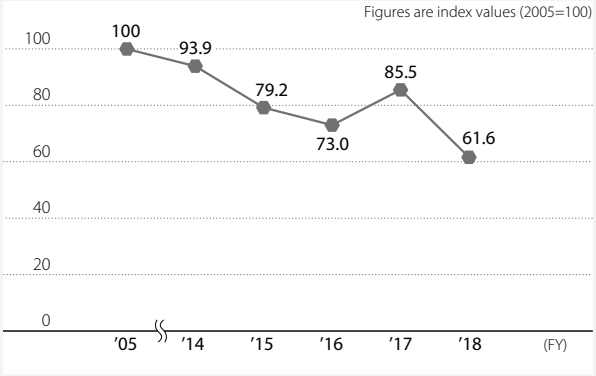
Economic Effects

(Billion yen)

Results	FY2017		FY2018	
	Non-Consolidated	Consolidated	Non-Consolidated	Consolidated
Reduced costs through energy saving	0.6	1.7	0.3	1.2
Reduced costs through resource saving	0.5	6.7	0.1	5.6
Reduced costs through recycling activities	2.2	3.7	2.6	2.8
Total	3.3	12.1	3.0	9.6

Economic effects are the rationalization value of per-unit improvement in such areas as energy and resource saving. In fiscal 2018, economic effects worsened year on year ¥0.3 billion on a non-consolidated basis and ¥2.5 billion on a consolidated basis.

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

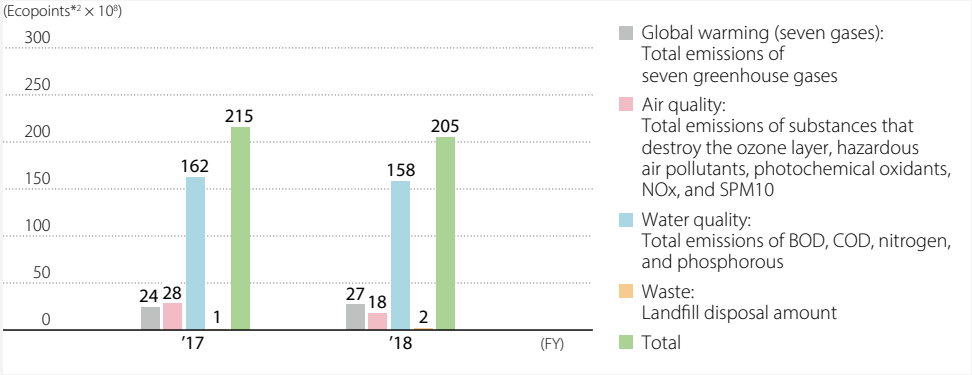


In fiscal 2009, we began implementing measures to improve the cost efficiency of our environmental protection measures by making sure that all activities were as cost effective as possible. We will implement more effective measures by analyzing and studying the breakdown of our environmental protection 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

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

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



Assessing the Environmental Impact of Each Group Company Using JEPIX

In fiscal 2018, 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.