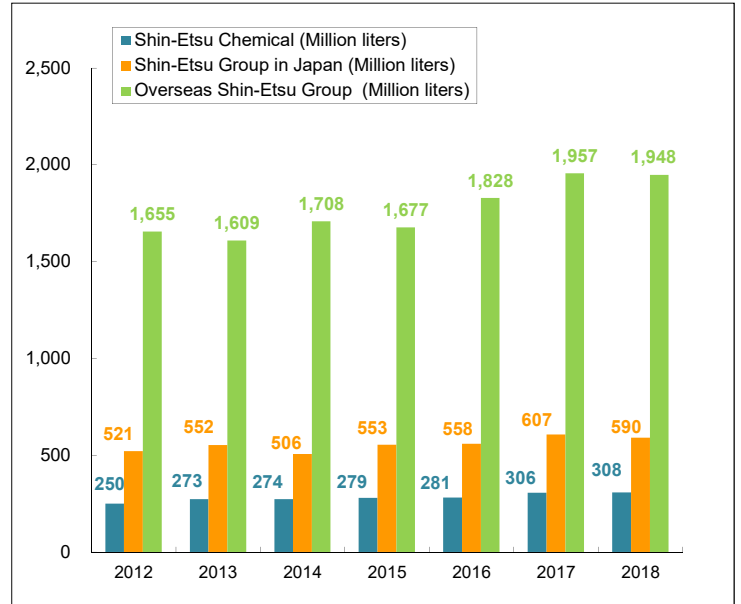
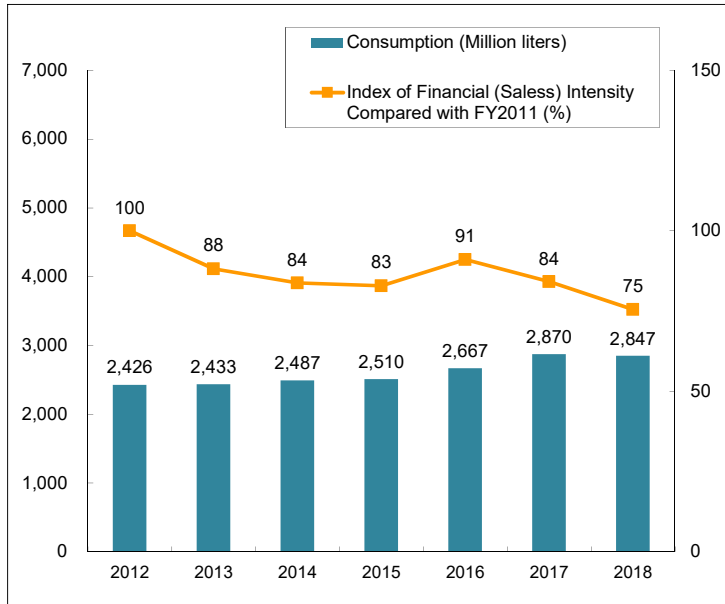


Environmental Data of Shin-Etsu Group

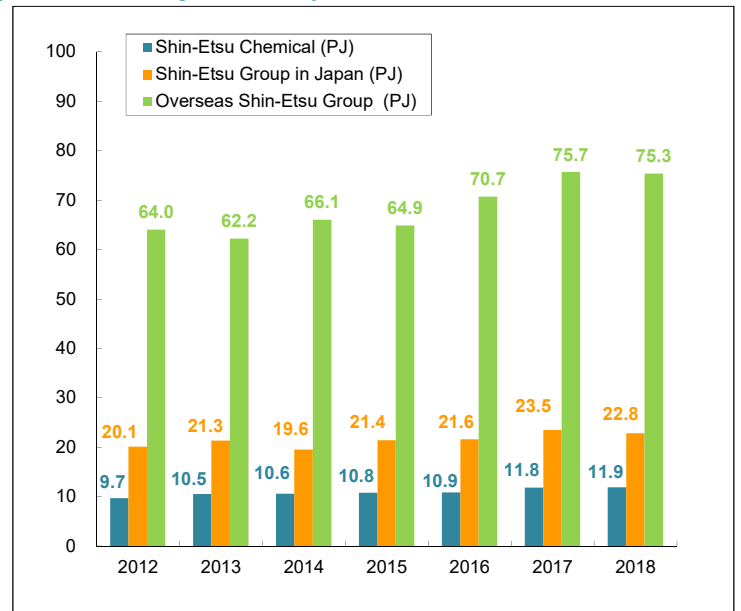
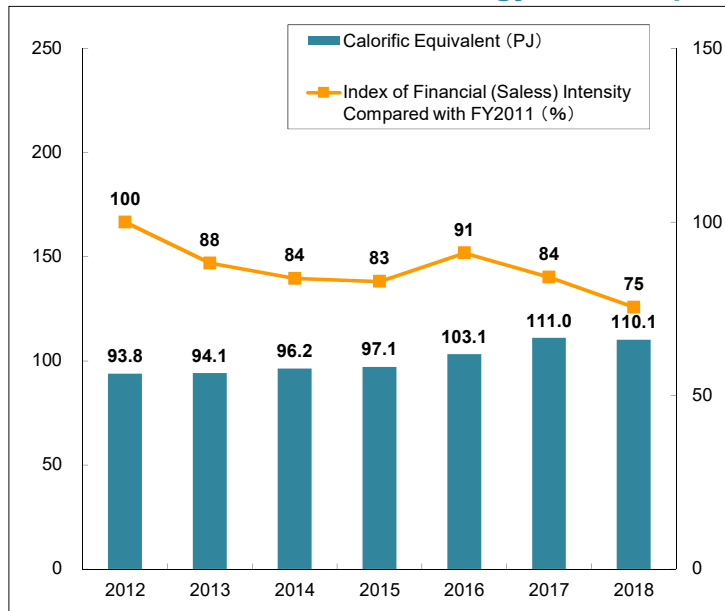
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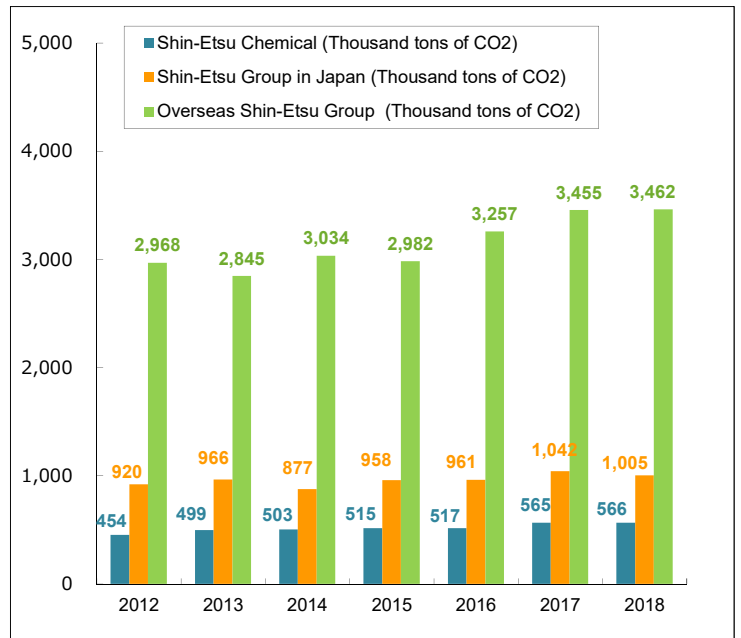
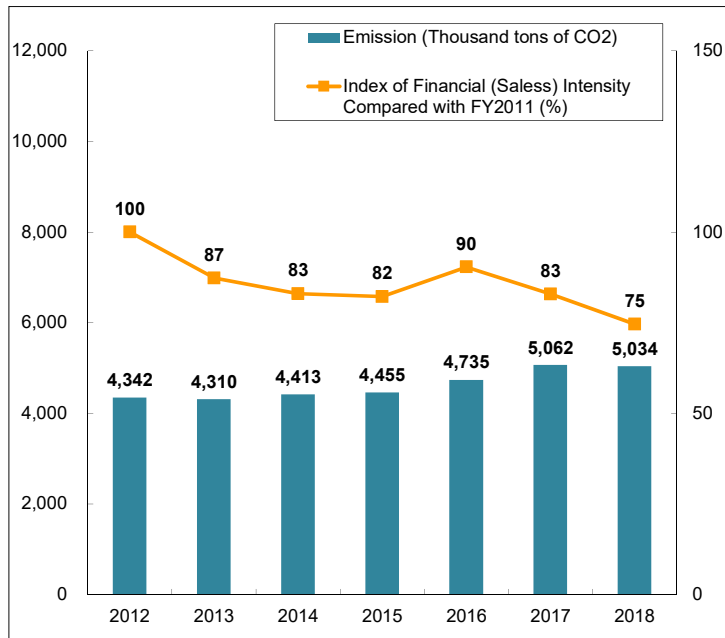
Energy Consumption (Crude Oil Equivalent)



Energy Consumption (Calorific Equivalent)



CO₂ Emissions (Energy Related)



Energy Consumption (Detailed Data)

Energy Consumption (Actual Usage)

Item	Unit	2012	2013	2014	2015	2016	2017	2018
Purchased Electricity	GWh	6,957	7,342	7,195	7,235	7,741	8,437	8,351
Purchased Steam	Thousand tons	2,059	2,073	1,946	1,996	2,202	2,180	2,309
A-tape Heavy Oil	Thousand liters	1,048	1,544	1,065	965	976	1,713	1,082
C-tape Heavy Oil	Thousand liters	10,074	5,803	6,251	5,779	5,906	5,808	6,077
Kerosene	Thousand liters	6,628	6,160	5,588	3,868	3,799	4,233	4,082
Natural Gas	MNm3	556	486	577	578	600	635	633
Gasoline	Thousand liters	963	944	969	987	886	893	894
Light Oil	Thousand liters	3,026	2,641	2,314	2,643	2,984	2,437	3,200
Liquefied Petroleum Gas	Thousand tons	32	31	25	32	33	34	27
Hydrogen	MNm3	25	38	47	55	59	76	71
Liquefied Natural Gas	tons	40	62	72	68	54	84	104

Energy Consumption (Crude Oil Equivalent)

Item	Unit	2012	2013	2014	2015	2016	2017	2018
Purchased Electricity	ML	1,583.8	1,671.1	1,637.9	1,647.1	1,762.2	1,920.8	1,901.2
Purchased Steam	ML	146.2	147.2	138.1	141.7	156.3	154.8	163.9
A-tape Heavy Oil	ML	1.1	1.6	1.1	1.0	1.0	1.7	1.1
C-tape Heavy Oil	ML	10.9	6.3	6.8	6.3	6.4	6.3	6.6
Kerosene	ML	6.3	5.8	5.3	3.7	3.6	4.0	3.9
Natural Gas	ML	624.8	546.2	648.9	649.2	674.8	713.5	711.1
Gasoline	ML	0.9	0.8	0.9	0.9	0.8	0.8	0.8
Light Oil	ML	2.9	2.6	2.3	2.6	2.9	2.4	3.1
Liquefied Petroleum Gas	ML	42.5	41.0	33.3	42.6	43.1	44.5	35.4
Hydrogen	ML	6.9	10.3	12.8	15.0	16.0	20.7	19.3
Liquefied Natural Gas	ML	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	ML	2,426.4	2,432.9	2,487.4	2,510.0	2,667.2	2,869.6	2,846.6

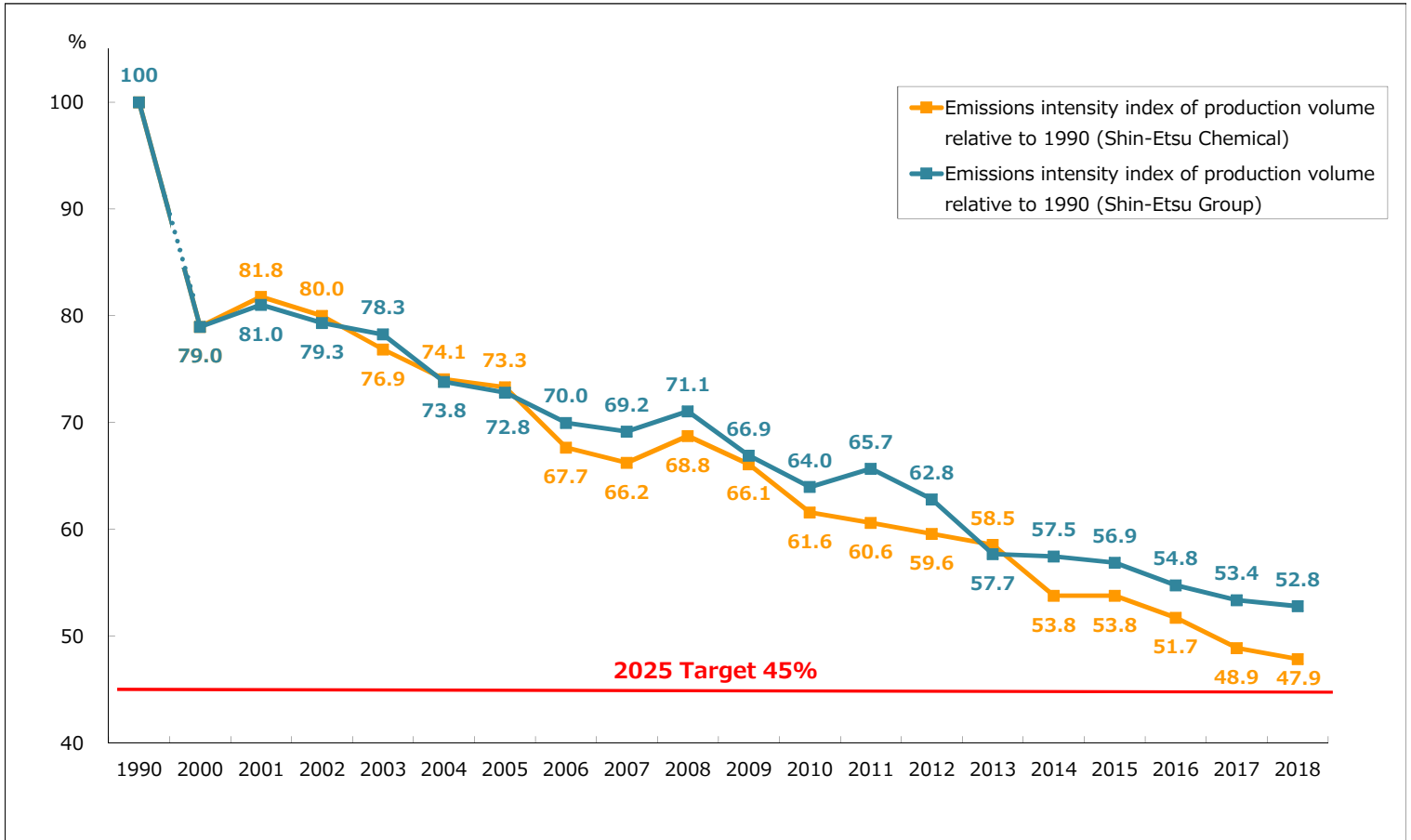
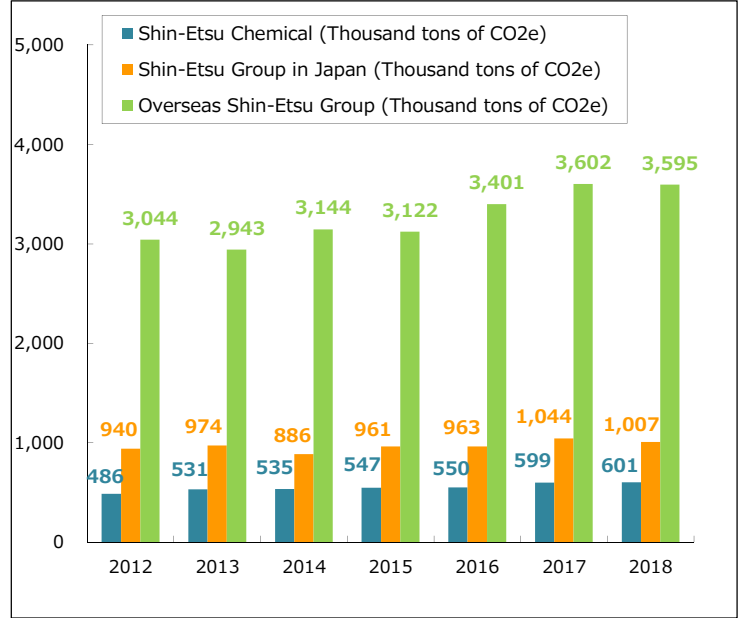
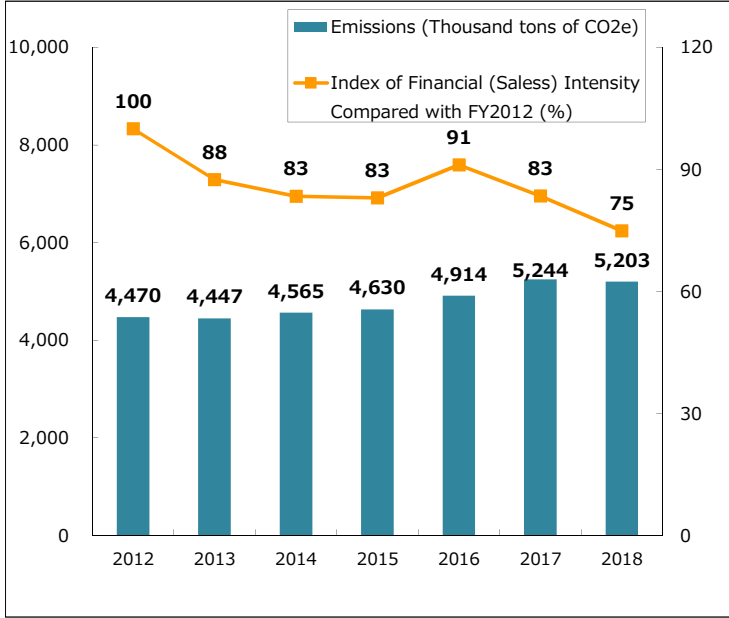
Energy Consumption (Calorific Equivalent)

Item	Unit	2012	2013	2014	2015	2016	2017	2018
Purchased Electricity	TJ	61,293	64,670	63,386	63,742	68,195	74,334	73,576
Purchased Steam	TJ	5,580	5,617	5,272	5,408	5,967	5,907	6,257
A-tape Heavy Oil	TJ	41	60	42	38	38	67	42
C-tape Heavy Oil	TJ	422	243	262	242	247	243	255
Kerosene	TJ	243	226	205	142	139	155	150
Natural Gas	TJ	24,180	21,136	25,114	25,123	26,116	27,612	27,518
Gasoline	TJ	33	33	34	34	31	31	31
Light Oil	TJ	114	100	87	100	113	92	121
Liquefied Petroleum Gas	TJ	1,646	1,588	1,288	1,650	1,669	1,724	1,372
Hydrogen	TJ	267	399	494	578	619	799	747
Liquefied Natural Gas	TJ	2	3	4	4	3	5	6
Total	TJ	93,822	94,075	96,188	97,060	103,137	110,968	110,073

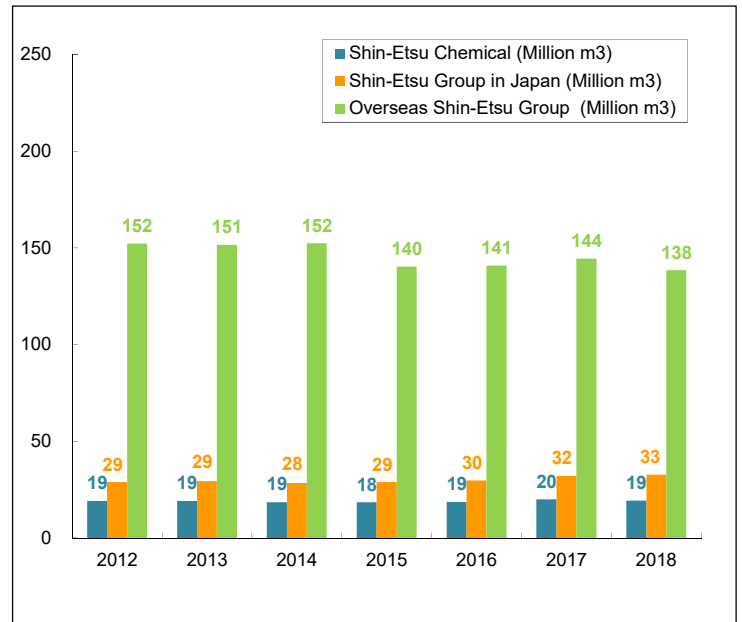
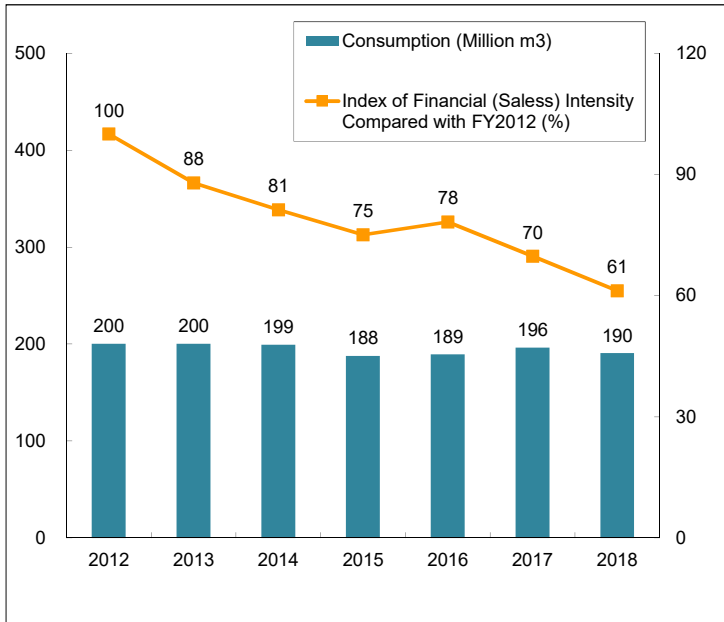
CO₂ Emissions

Item	Unit	2012	2013	2014	2015	2016	2017	2018
Purchased Electricity	Thousand tons of CO ₂	2,504.6	2,642.6	2,590.1	2,604.7	2,786.6	3,037.5	3,006.5
Purchased Steam	Thousand tons of CO ₂	446.4	449.4	421.8	432.7	477.4	472.6	500.6
A-tape Heavy Oil	Thousand tons of CO ₂	2.8	4.2	2.9	2.6	2.6	4.6	2.9
C-tape Heavy Oil	Thousand tons of CO ₂	30.2	17.4	18.8	17.3	17.7	17.4	18.2
Kerosene	Thousand tons of CO ₂	16.5	15.3	13.9	9.6	9.5	10.5	10.2
Natural Gas	Thousand tons of CO ₂	1,232.4	1,077.2	1,280.0	1,280.4	1,331.0	1,407.3	1,402.5
Gasoline	Thousand tons of CO ₂	2.2	2.2	2.2	2.3	2.1	2.1	2.1
Light Oil	Thousand tons of CO ₂	7.8	6.8	6.0	6.8	7.7	6.3	8.3
Liquefied Petroleum Gas	Thousand tons of CO ₂	98.5	95.0	77.1	98.8	99.9	103.2	82.1
Hydrogen	Thousand tons of CO ₂	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied Natural Gas	Thousand tons of CO ₂	0.1	0.2	0.2	0.2	0.1	0.2	0.3
Total	Thousand tons of CO ₂	4,341.7	4,310.4	4,413.0	4,455.4	4,734.7	5,061.7	5,033.7

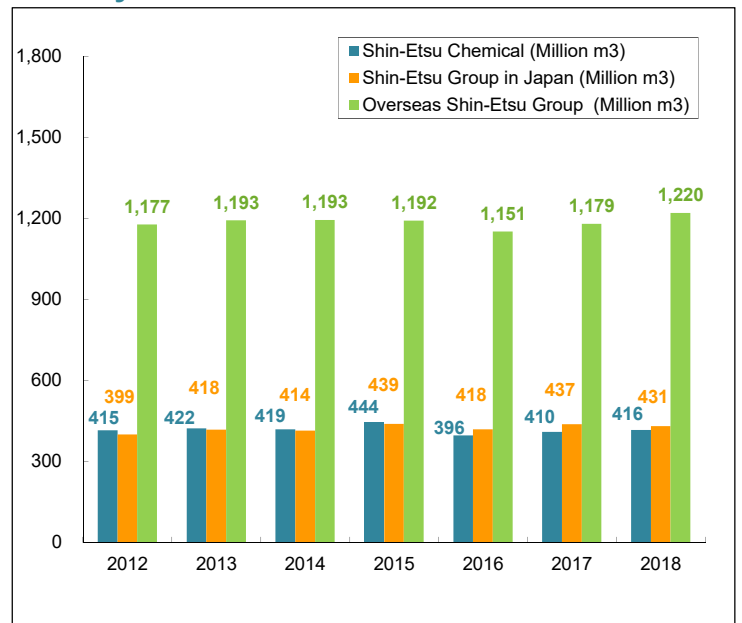
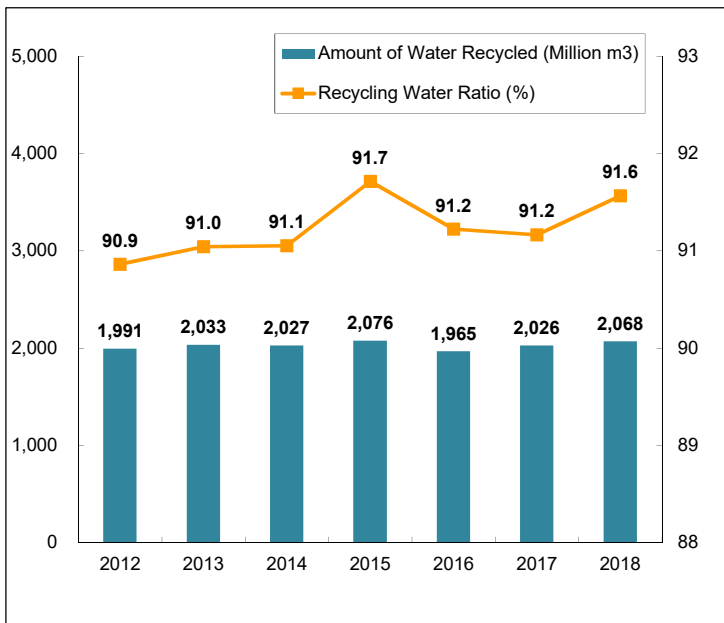
Greenhouse Gas Emissions



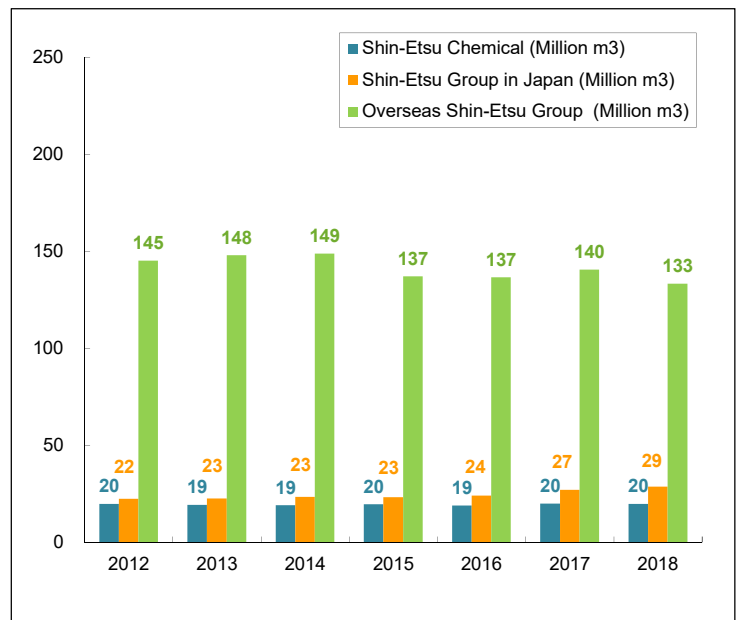
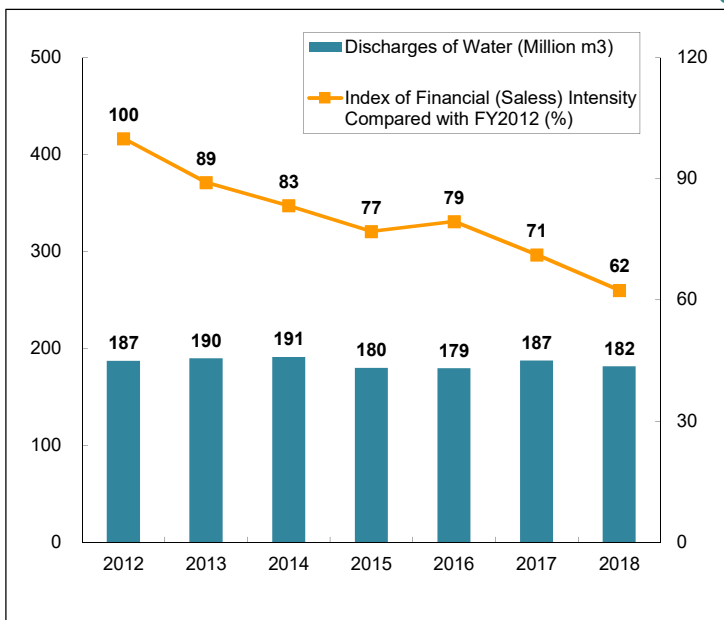
Water Intakes



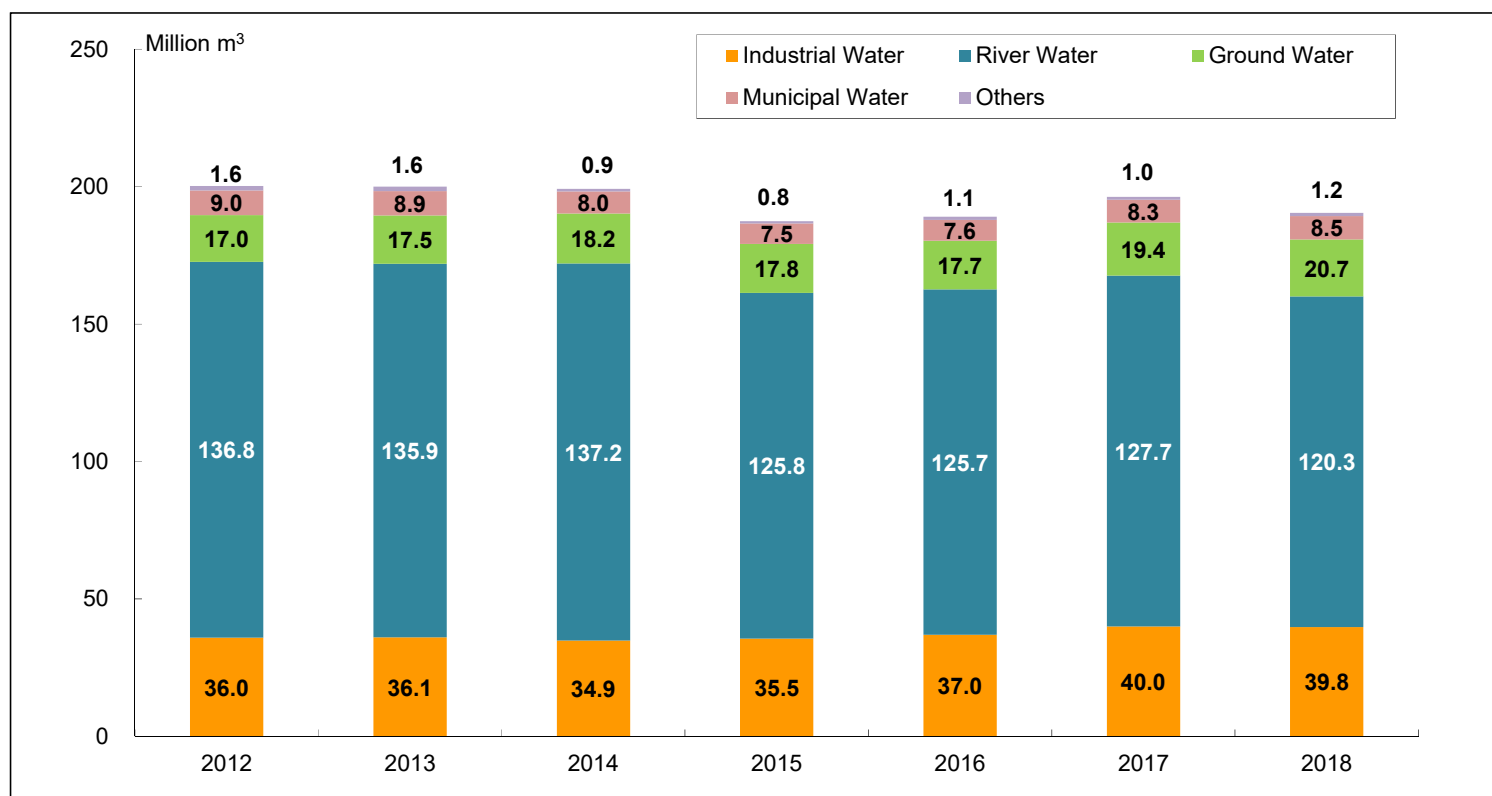
Amount of Water Recycled



Discharges of Water



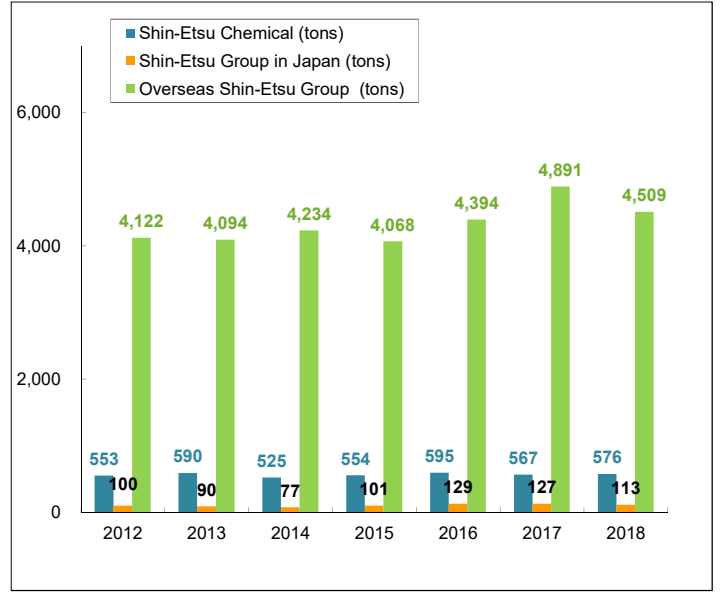
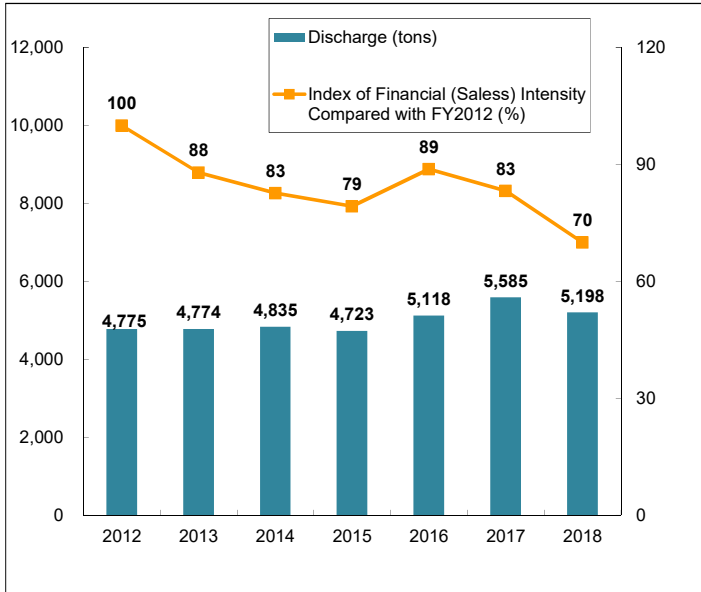
Water Intakes by Water Sources



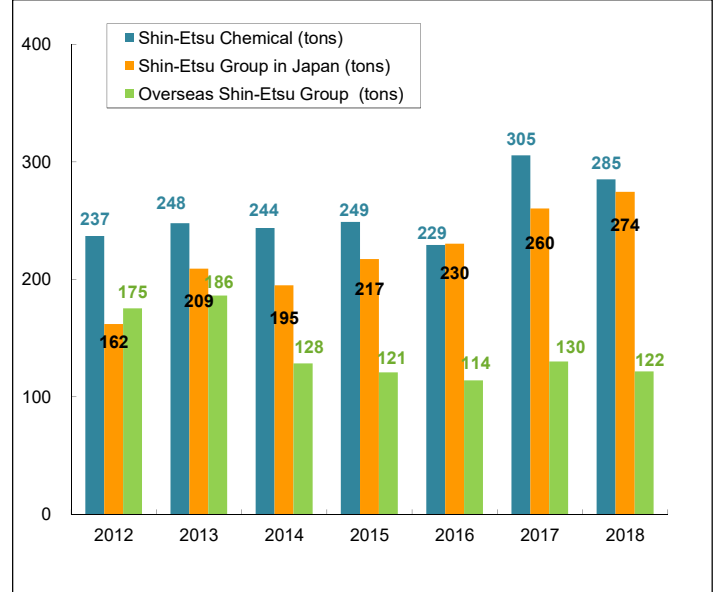
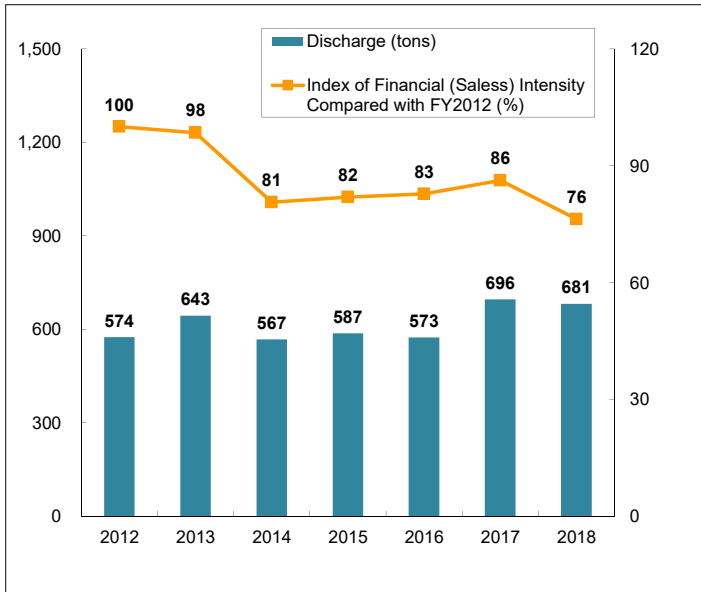
Water Sources	Water Intakes (Unit: million m3)						
	2012	2013	2014	2015	2016	2017	2018
Industrial Water	36.0	36.1	34.9	35.5	37.0	40.0	39.8
River Water	136.8	135.9	137.2	125.8	125.7	127.7	120.3
Ground Water	17.0	17.5	18.2	17.8	17.7	19.4	20.7
Municipal Water	9.0	8.9	8.0	7.5	7.6	8.3	8.5
Others	1.6	1.6	0.9	0.8	1.1	1.0	1.2
Total	200.3	200.1	199.2	187.5	189.1	196.3	190.5

Discharge of Water Pollutant

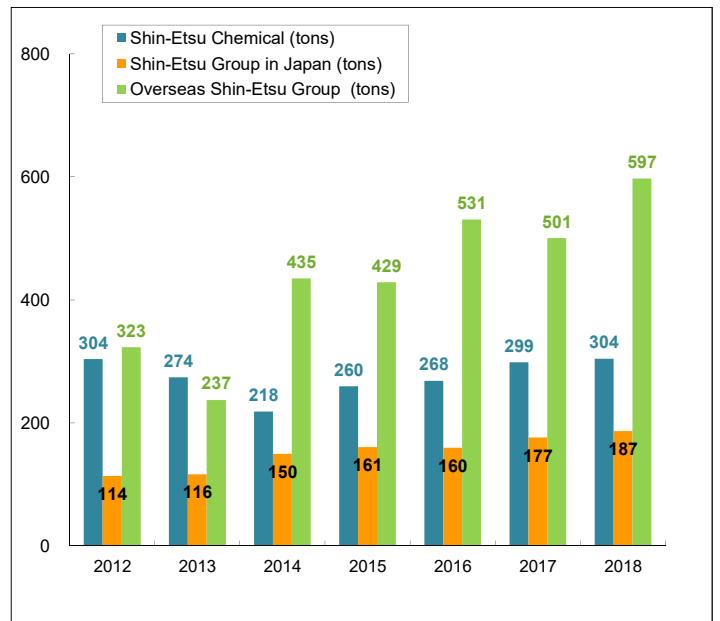
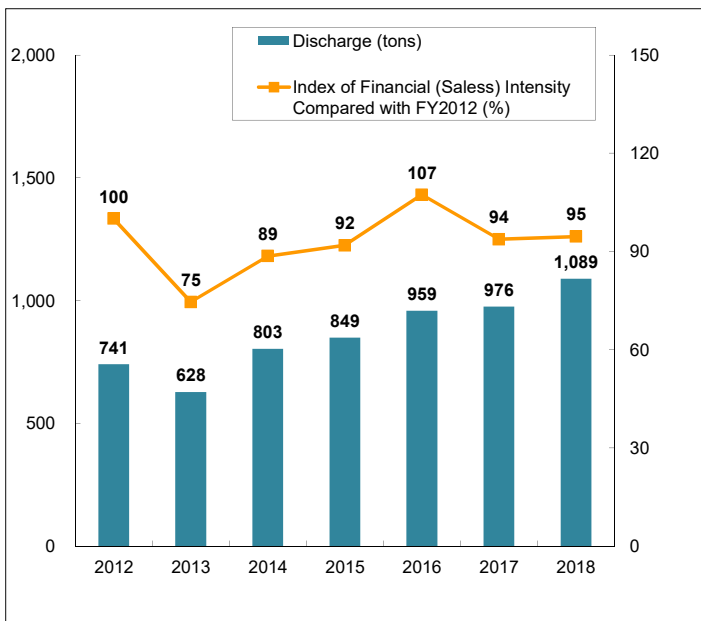
COD



BOD

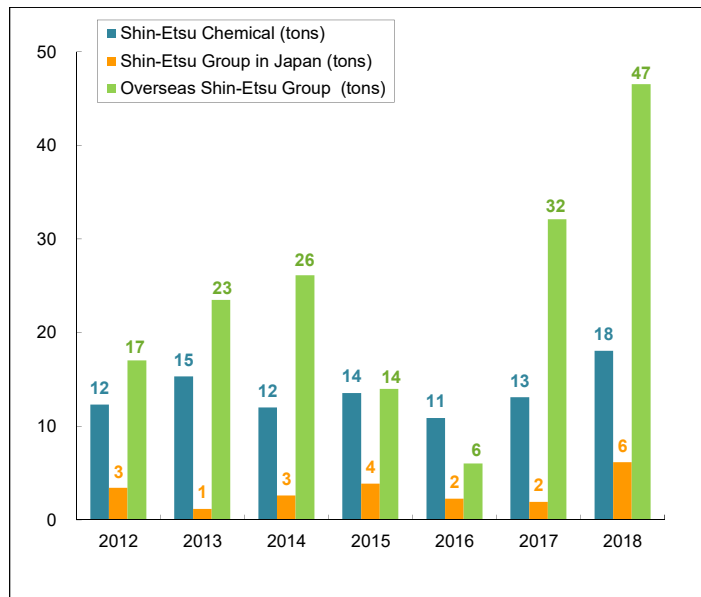
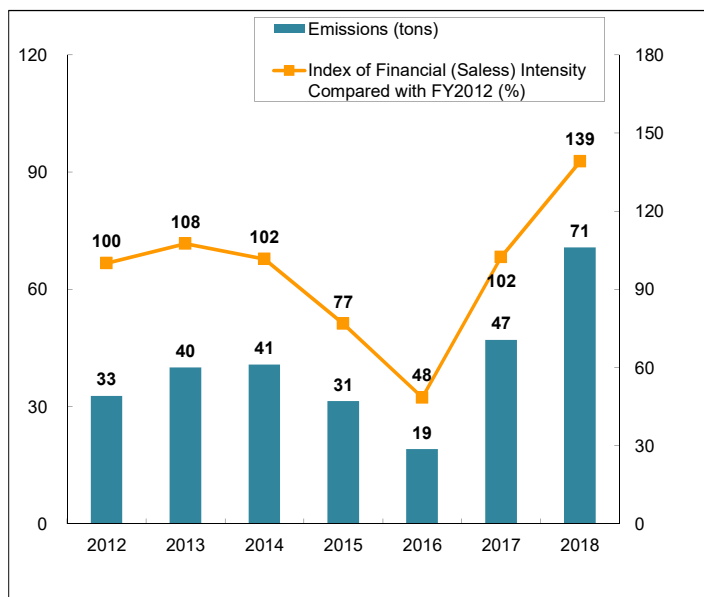


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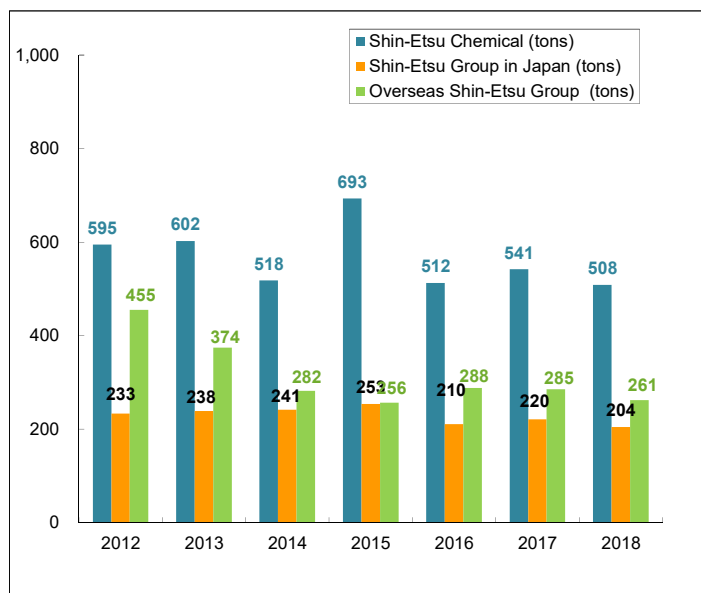
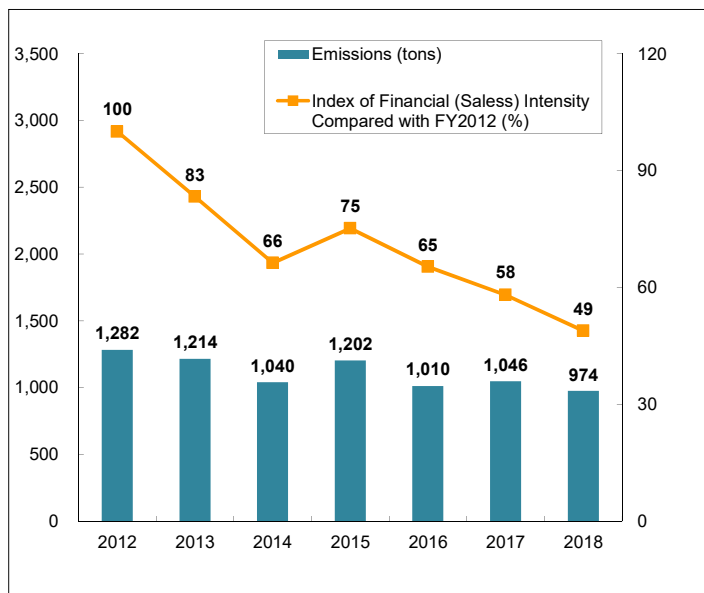


Emissions of Air Pollution Substances

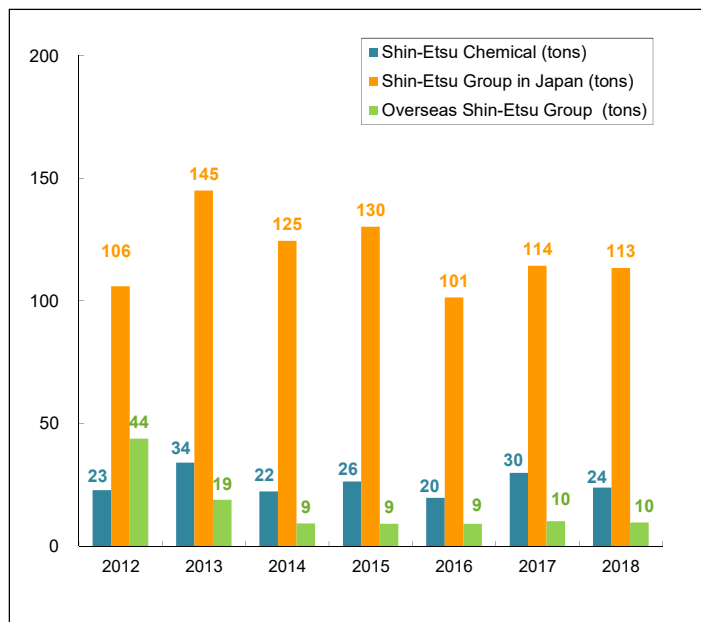
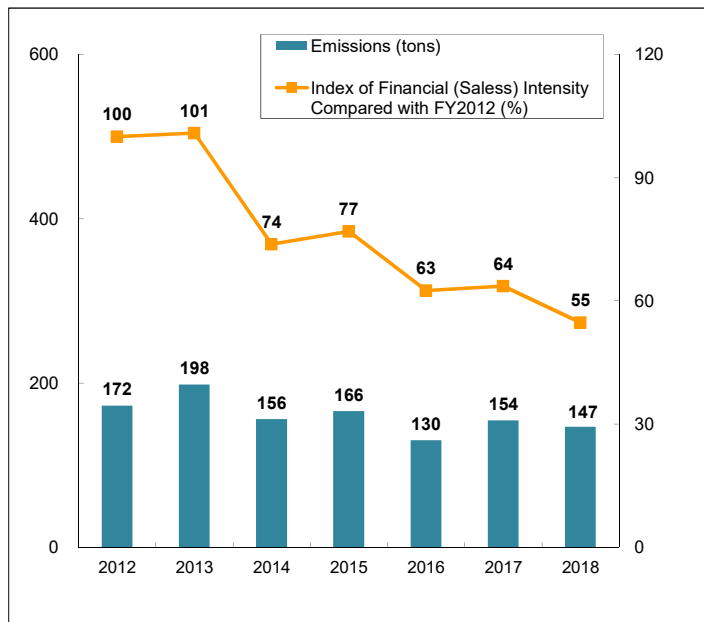
Soot



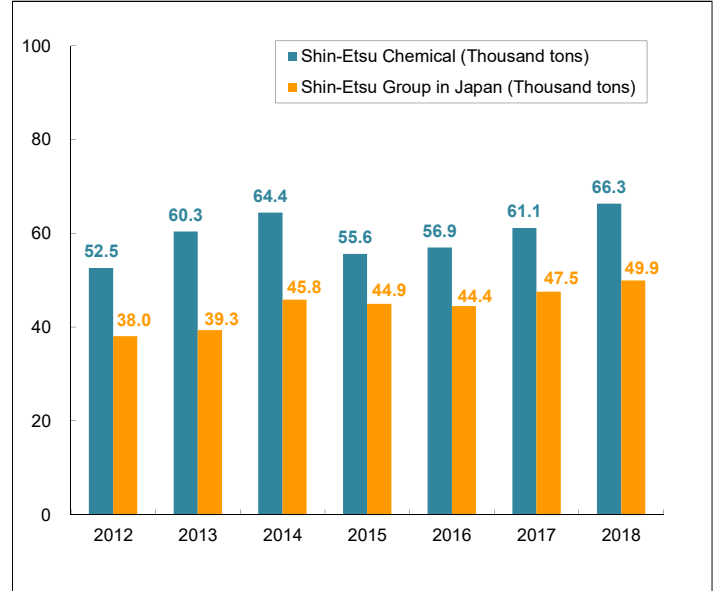
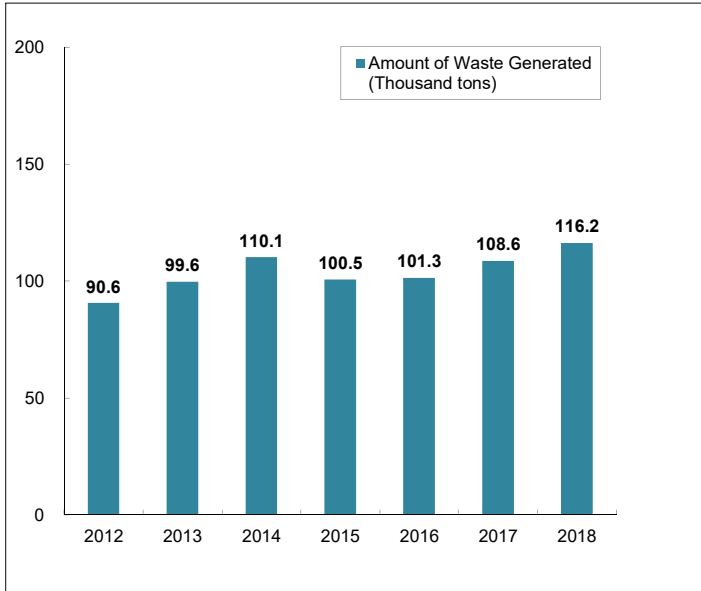
NOx



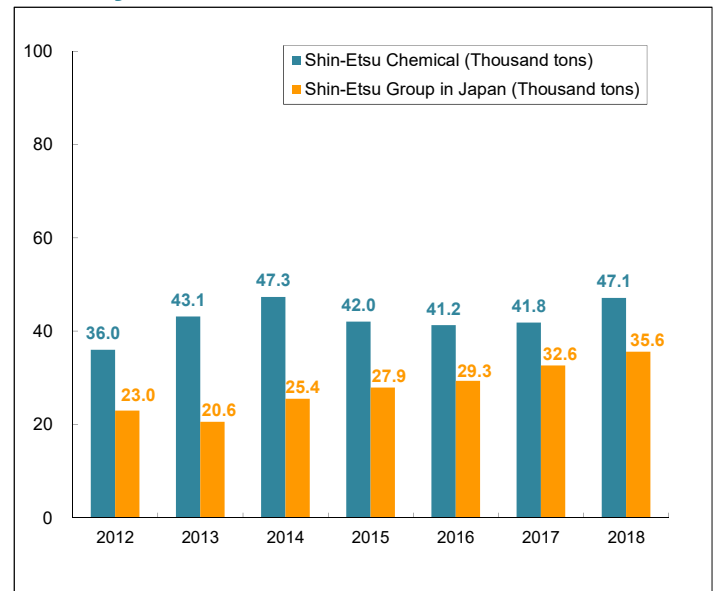
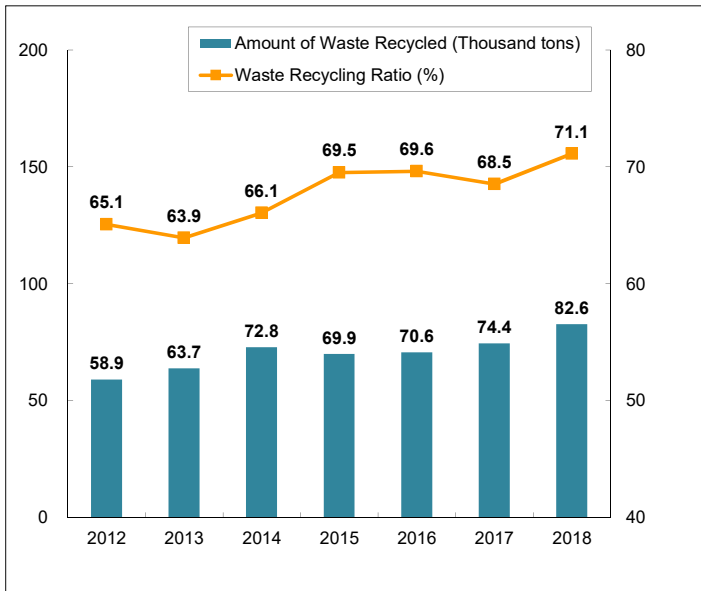
SOx



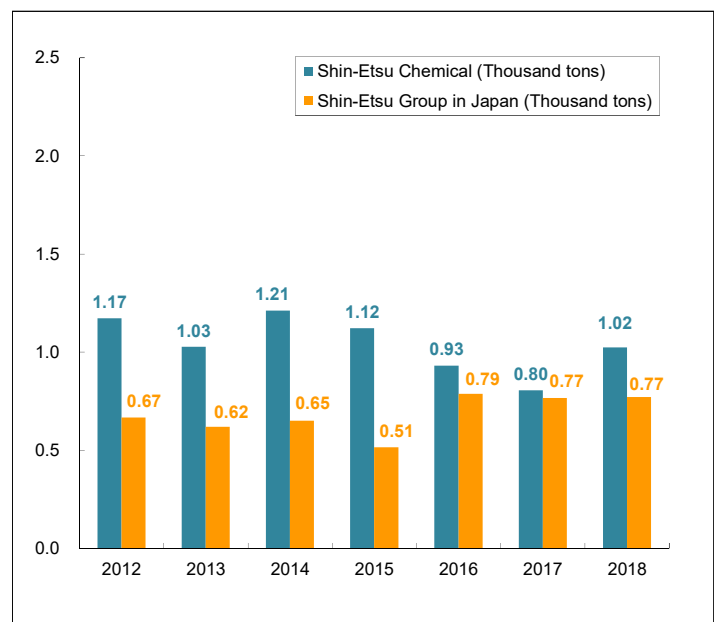
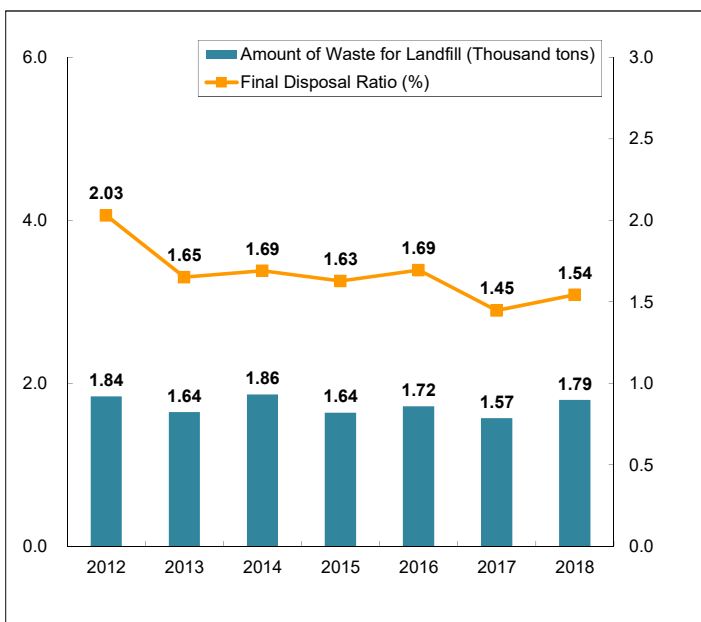
Amount of Waste Generated



Amount of Waste Recycled



Amount of Waste for Landfill



*The figures are aggregated only for Shin-Etsu Chemical and group companies in Japan because waste standards differ from country to country.

Detailed data of Waste

Amount of Waste Generated

Item	Unit	2012	2013	2014	2015	2016	2017	2018
Sluge	tons	41,124	29,219	31,695	41,002	41,462	45,503	45,683
Waste Oil	tons	22,822	23,829	24,499	13,263	17,183	17,754	18,716
Waste Acid	tons	7,197	9,834	8,740	5,417	4,666	5,028	6,081
Waste Alkaline	tons	4,254	21,210	28,548	24,925	21,546	22,763	25,390
Waste Plastic	tons	6,371	7,916	8,023	7,878	7,808	7,621	9,503
Waste Paper	tons	1,956	2,018	2,115	1,807	2,102	2,118	2,165
Waste Wood	tons	692	734	702	649	698	897	1,062
Metal Scraps	tons	3,686	3,622	4,641	4,495	4,496	5,257	5,904
Glassl Scraps	tons	845	833	754	767	982	1,152	1,266
Others	tons	1,604	429	431	338	390	473	389
Total	tons	90,551	99,644	110,148	100,540	101,333	108,567	116,181

Amount of Waste Recycled

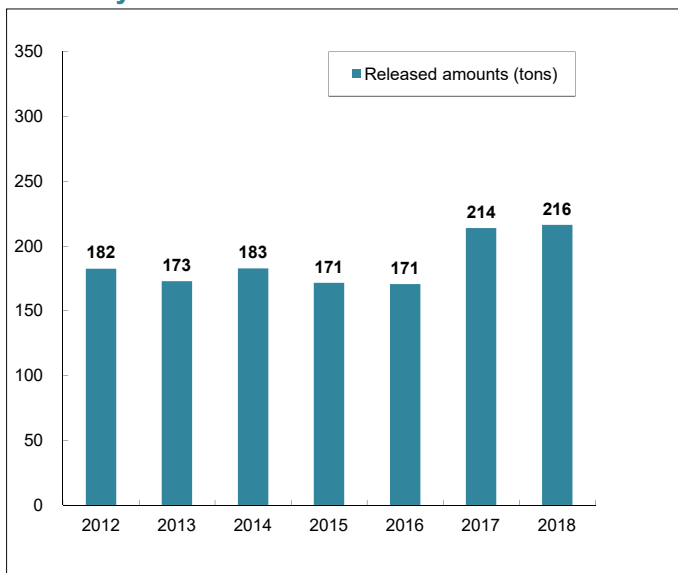
Item	Unit	2012	2013	2014	2015	2016	2017	2018
Sluge	tons	29,293	15,672	17,658	20,917	25,000	28,353	29,206
Waste Oil	tons	6,615	5,636	6,029	6,355	7,514	5,401	6,653
Waste Acid	tons	6,699	8,550	7,447	4,371	3,408	4,017	4,868
Waste Alkaline	tons	3,212	20,168	26,912	23,882	20,047	21,128	23,762
Waste Plastic	tons	5,733	7,280	7,394	7,417	7,305	7,114	8,925
Waste Paper	tons	1,266	1,405	1,506	1,321	1,419	1,633	1,638
Waste Wood	tons	536	606	575	503	554	586	693
Metal Scraps	tons	3,668	3,572	4,569	4,439	4,393	5,084	5,744
Glassl Scraps	tons	561	589	477	513	720	887	988
Others	tons	1,340	227	187	162	200	207	165
Total	tons	58,923	63,704	72,753	69,880	70,560	74,410	82,643

Amount of Waste for Landfill

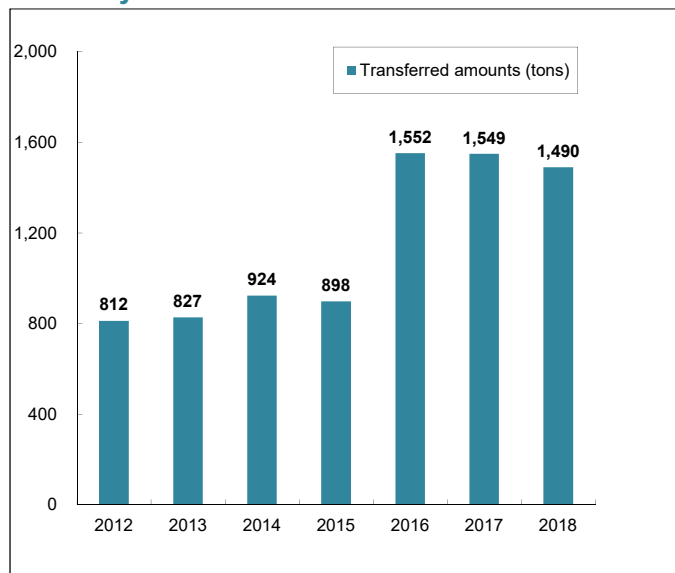
Item	Unit	2012	2013	2014	2015	2016	2017	2018
Sluge	tons	1,110	1,000	1,165	1,119	1,163	1,077	1,171
Waste Oil	tons	22	19	19	17	18	18	23
Waste Acid	tons	18	16	15	15	16	11	16
Waste Alkaline	tons	93	80	66	32	53	33	53
Waste Plastic	tons	169	170	188	154	135	103	152
Waste Paper	tons	94	59	49	20	32	28	25
Waste Wood	tons	4	3	4	2	2	1	2
Metal Scraps	tons	2	7	2	4	11	13	25
Glassl Scraps	tons	254	241	254	238	242	247	259
Others	tons	73	50	101	35	45	39	68
Total	tons	1,839	1,645	1,861	1,636	1,717	1,570	1,793

*The figures are aggregated only for Shin-Etsu Chemical and group companies in Japan because waste standards differ from country to country.

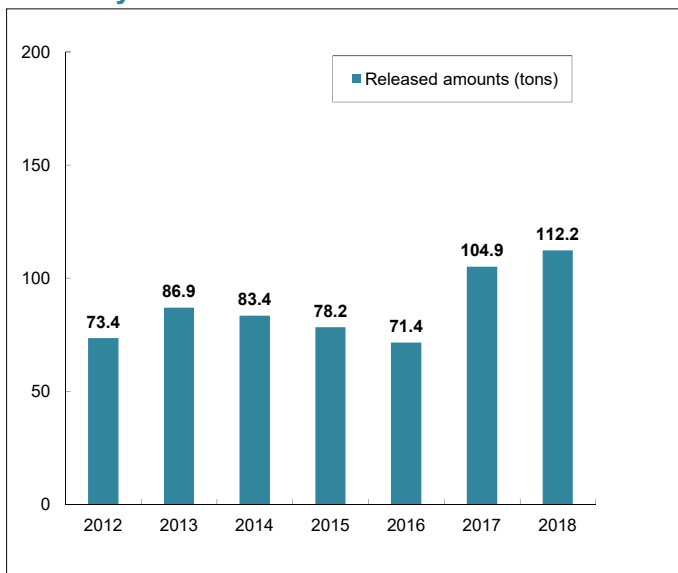
PRTR System Total Released Amounts



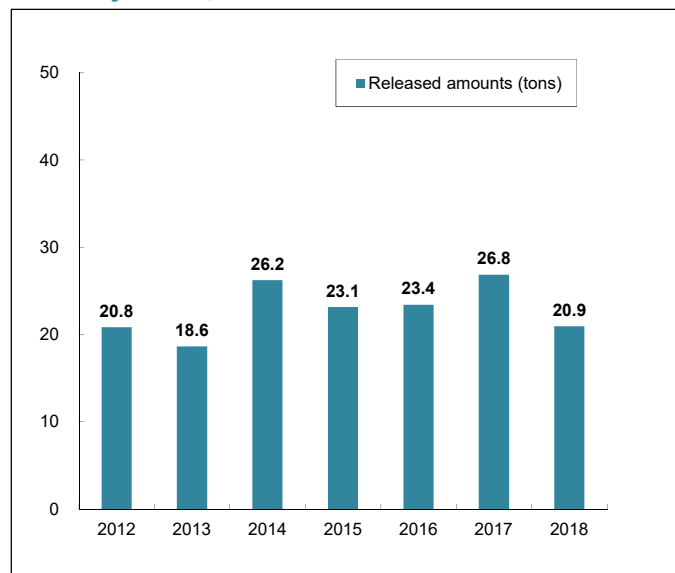
PRTR System Total Transferred Amounts



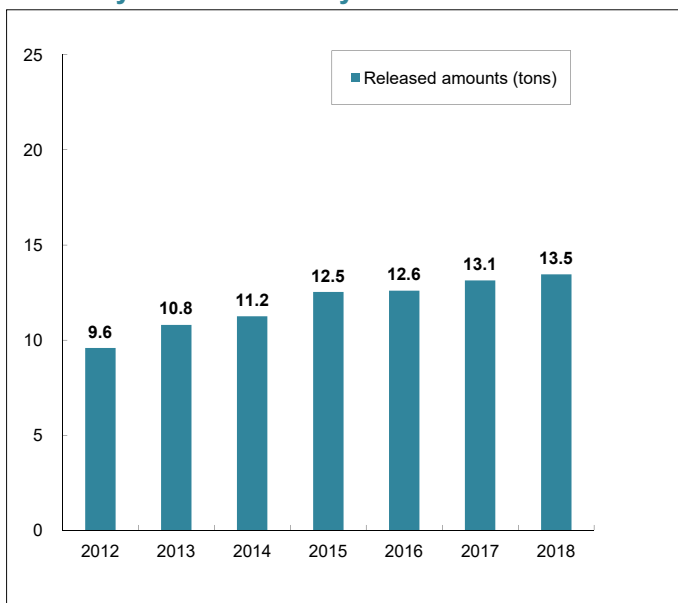
PRTR System Chloromethane Released Amounts



PRTR System 1,2-Dichloroethane Released Amounts

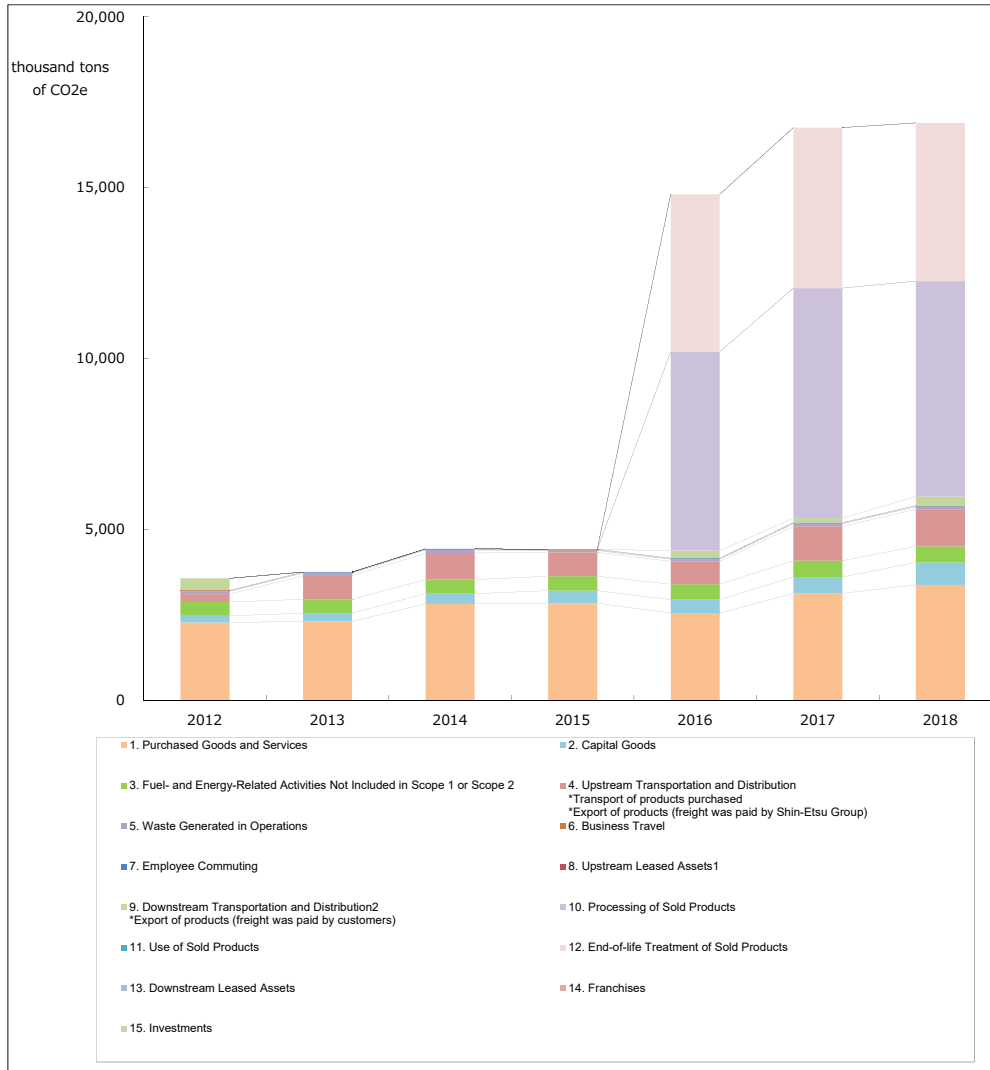


PRTR System Chloroethylene Released Amounts



*The figures are aggregated only for Shin-Etsu Chemical and group companies in Japan in accordance with the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof and the PRTR.

Scope 3 Greenhouse Gas Emissions



Unit: thousand tons of CO2e

Category		2012	2013	2014	2015	2016	2017	2018
Upstream	1. Purchased Goods and Services	2,270	2,301	2,813	2,834	2,545	3,121	3,371
	2. Capital Goods	196	243	300	368	398	481	657
	3. Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2	403	406	415	420	445	478	472
	4. Upstream Transportation and Distribution *Transport of products purchased *Export of products (freight was paid by Shin-Etsu Group)	232	686	775	700	671	1,008	1,086
	5. Waste Generated in Operations	79.5	80	88	52	61	72	71
	6. Business Travel	8.7	10	11	13	11	10	11
	7. Employee Commuting	18.3	20	22	22	24	22	24
	8. Upstream Leased Assets ¹	0.283	-	-	-	-	-	-
Downstream	9. Downstream Transportation and Distribution ² *Export of products (freight was paid by customers)	354	-	-	-	220	132	266
	10. Processing of Sold Products	-	-	-	-	5,818	6,734	6,305
	11. Use of Sold Products	-	-	-	-	-	-	-
	12. End-of-life Treatment of Sold Products	-	-	-	-	4,610	4,696	4,629
	13. Downstream Leased Assets	-	-	-	-	-	-	-
	14. Franchises	-	-	-	-	-	-	-
	15. Investments	-	-	-	-	-	-	-
Total		3,562	3,745	4,426	4,409	14,803	16,754	16,892

¹ Category 8 covers rental expense of our overseas non-manufacturing bases. However, it is extremely little, so Category 8 has been eliminated from calculations from FY2013.

² The emissions of export of products (freight was paid by Shin-Etsu Group) that was calculated as pertaining to Category 9 for FY 2012 has been included in Category 4 from FY2013 on reconsidering the contents of Category 9.

*Since fiscal 2016, the Group started disclosing the green gas emissions in the downstream of supply chain. This move has considerably increased the total green gas emissions in the Group's Scope 3.

※From FY 2016, we have disclosed emissions from downstream in the supply chain.

The list of covering companies

Japan
Shin-Etsu Chemical Co., Ltd.
Shin-Etsu Handotai Co., Ltd.
Shin-Etsu Polymer Co., Ltd.
Shin-Etsu Astech Co., Ltd.
Shin-Etsu Engineering Co., Ltd.
Nagano Electronics Industrial Co., Ltd.
Naoetsu Electronics Co., Ltd.
Shin-Etsu Finetech Co., Ltd.
JAPAN VAM & POVAL CO., LTD.
Nissin Chemical Industry Co., Ltd.
Nihon Resin Co., Ltd.
Naoetsu Precision Co., Ltd.
Skyward Information System Co., Ltd.
Shinano Electric Refining Co., Ltd.
Fukui Environmental Analysis Center Co., Ltd.
Shin-Etsu Film Co., Ltd.
Shin-Etsu Technology Service Co. Ltd.
Naoetsu Sangyo Co., Ltd.
Saitama Shinkoh Mold Co., Ltd.
Shinkoh Mold Co., Ltd.
Shin-Etsu Magnet Co., Ltd.
Human Creat Co., Ltd.
Kashima Chlorine and Alkali Co., Ltd.
Kashima Vinyl Chloride Monomer Co., Ltd.
Mimasu Semiconductor Industry Co., Ltd.
Shin-Etsu Quartz Co., Ltd.
Adomatechs Co., Ltd.
Yamagata Shin-Etsu Quartz Co., Ltd.
Fukui Shin-Etsu Quartz Co., Ltd.
Shinmujiko Co., Ltd.
Others (20 companies)

Overseas
Shintech Inc.
Shin-Etsu (Malaysia) Sdn. Bhd.
Shin-Etsu Handotai America Inc.
Shin-Etsu PVC B.V.
SE Tylose GmbH & Co.KG
Shin-Etsu Handotai Taiwan Co., Ltd.
Simcoa Operations Pty. Ltd.
Shin-Etsu Silicones (Thailand) Ltd.
Asia Silicones Monomer Ltd.
Shin-Etsu Handotai Europe Ltd.
S-E Inc.
Shin-Etsu Electronics Materials Singapore Pte. Ltd.
Shin-Etsu Silicone International Trading (Shanghai) Co., Ltd.
Shin-Etsu Magnetics Philippines Inc.
CIRES, S.A.
Shin-Etsu Singapore Pte. Ltd.
Shin-Etsu Silicone Korea Co., Ltd.
Shin-Etsu (Malaysia) Sdn. Bhd.
Shin-Etsu MicroSi, Inc.
Shin-Etsu Silicone Taiwan Co., Ltd.
Shin-Etsu Silicones of America Inc.
Shin-Etsu Silicones Europe B.V.
Shin-Etsu Opto Electronic Co., Ltd.
Shin-Etsu Polymer (Malaysia) Sdn. Bhd.
Shin-Etsu Polymer Europe B.V.
Shin-Etsu International Europe B.V.
Shin-Etsu Polymer America, Inc.
Shin-Etsu Polymer India Pvt. Ltd.
P.T. Shin-Etsu Polymer Indonesia
Shin-Etsu Polymer Singapore Pte. Ltd.
Shin-Etsu Polymer Shanghai Co., Ltd.
Shin-Etsu Polymer Hong Kong Co., Ltd.
Shin-Etsu Polymer Hungary Kft.
Shin-Etsu Polymer Thailand Ltd.
Dongguan Shin-Etsu Polymer Co., Ltd.
Suzhou Shin-Etsu Polymer Co., Ltd.
S.E.H. (Shah Alam) Sdn. Bhd.
Shin-Etsu Handotai Singapore Pte.Ltd.
SE Tylose USA, Inc.
K-Bin INC.
Shin-Etsu Silicone (Nantong) Co., Ltd.
Shin-Etsu (Jiangsu) Optical Preform Co., Ltd.
Shin-Etsu Magnetic Materials Vietnam Co., Ltd.
Shin-Etsu Electronics Materials Taiwan Co., Ltd.
Shin-Etsu YOFC (Hubei) Optical Preform Co., Ltd.
Shin-Etsu do Brasil Representação de Produtos Químicos Ltda.
Zhejiang Shin-Etsu High-Tech Chemical Co., Ltd.
Shin-Etsu Technology (Suzhou) Co., Ltd.
Shin-Etsu (Changting) Technology Co., Ltd.
Shin-Etsu Magnetics (Thailand) Ltd.
Biocontrol Pty. Ltd.
Shin-Etsu Electronics Materials Vietnam Co., Ltd.
Others (24 companies)