



Environmental Data Book 2016

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Coverage of reporting

Japan: All facilities including sales offices

Other countries: Principal production facilities: Tampere plant (Finland) and Suzhou plant (China)

Period of reporting

Japan: 01/04/2015~31/03/2016

Other countries: 01/01/2015 ~ 31/12/2015

Overview of Environmental Impact

Santen works to determine the impact on the environment regarding energy input, input of materials, input of water resources, emissions into the air and water, and disposal of waste and others accompanying its business activities and acts continually for the reduction of environmental burdens.

This report covers the whole Santen group including all princilpal production facilities. Santen continues to make efforts to enhance information disclosure.

Input	t			S anten		Output		
Total energy input	483,733	GJ				Release into air		
Electricity	29,663			Research		CO ₂		ktons
Gas	2,797	km3		and Development		SOx (sulfur oxides)	4.50	tons
LPG		tons				NOx (nitrogen oxides)	5.52	tons
Heavy oil	1,846	kl			4	Dust	0.61	tons
Gasoline ^{×1}	1,025	kl	7	Day do at an	7	VOC(volatile organic compounds)	26.50	
Total input of materials	4,442	tons		Production		Release into water		
materials	4,321	tons				Drainage water	330	km ³
plastic	3,000	tons				BOD load (biochemical oxygen demand) ^{**2}		
paper for packaging	1,309	tons		Sales		COD load (chemical oxygen demand) ^{**2}		
others	12	tons				SS load (suspended solids) ^{**2}		tons
Raw materials		tons		-	<u>.</u>	Release of waste and others		
chemical		tons			1	Emissions	2,224	tons
Input water resources	411	km ³		Pharmaceutical		Recycled Resources	2,213	tons
Tap water	67	km ³		wholesalers		Final Disposal		tons
Industrial water	80	km³			J			
Well water	265	km³			7	Emissions from used containers and packaging	1,711	tons
				Hospitals and	١.	Plastic containers	1,480	tons
				medical facilities, etc.		Paper containers		tons
				lacinties, etc.		Glass / others		tons
[Consolidated]					-			
Input	t			\$ anten		Output		
Total energy input	617,922	GJ		Research		Release into air ^{※3}		
Electricity	41,484			and Development		CO ₂		ktons
Gas	3,418	km3		Development		SOx (sulfur oxides)	10.10	tons
		toma	_	Production	_	NOx (nitrogen oxides)		tons
LPG	6	tons				Dust		
LPG Heavy oil	1,846		7	Sales	Ι΄	Dust	0.61	tons
Heavy oil Heating and Cooling	1,846 13,805	kl	7	Sales	'	VOC(volatile organic compounds)	0.61 64.70	
Heavy oil	1,846 13,805	kl GJ	7	Pharmaceutical]			
Heavy oil Heating and Cooling Gasoline Input water resources	1,846 13,805 1,025 519	kl GJ kl		•]	VOC(volatile organic compounds)		tons
Heavy oil Heating and Cooling Gasoline *1	1,846 13,805 1,025 519	kl GJ kl km³		Pharmaceutical]	VOC(volatile organic compounds) Release of waste and others	64.70	tons

※1:Gasoline input is mainly input from commercial vehicle.

 265 km^3

- ※2: Emission is based on results from regular examinations.
- X3: Suzhou plant in China is excluded.

Well water

facilities, etc.

Greenhouse gas (CO₂) emissions [tons]

[Japan]

Operational site			%Change			
Operational site	2012	2013	2014	2015	2016	2016/2015
Osaka Office and Osaka Plant	4,967	4,510	3,265	4,345	336	-92.3
Noto Plant	11,829	10,868	9,340	9,761	10,097	3.4
Shiga Product Supply Center	4,708	5,158	5,416	5,431	6,544	20.5
Nara Research and Development Center	4,778	4,837	4,666	4,331	4,034	-6.9
Branch and sales offices and others	2,785	2,709	2,803	3,369	2,740	-18.7
Total	29,067	28,082	25,491	27,237	23,751	-12.8

For the CO₂ conversion factor for electric power, the emission factor of the Federation of Pharmaceutical Manufactuers' Associations of Japan is used.

CO ₂ emissions per unit of sales	[t-CO ₂ /billion yen]	2.82	2.63	1.98	1.97	1.52	-22.7
or saics							

[Other countries' plant]

Tampere plant (Finland)	2,144	2,265	2,252	2,120	2,015	-5.0
Suzhou plant (China)	4,600	5,226	5,467	5,293	6,074	14.8
Total	6,744	7,491	7,719	7,413	8,089	9.1

For the CO₂ conversion factor for electric power, the emission factor of the International Energy Agency (IEA) is used.

[Consolidated]

Greenhouse gas emissions (C	CO ₂)	35,811	35,572	33,210	34,650	31,840	-8.1
CO ₂ emissions per unit of sales [t-	-CO ₂ /billion yen]	3.13	2.99	2.23	2.14	1.63	-23.9

Energy usage [GJ]

sales

[Japan]		Year	r ended March 3	1		%Change
Operational site	2012	2013	2014	2015	2016	2016/2015
Osaka Office and Osaka Plant	117,961	106,892	79,094	100,595	9,625	-90.4
Noto Plant	232,515	222,110	204,470	212,605	219,213	3.1
Shiga Product Supply Center	110,679	121,064	127,411	129,066	153,088	18.6
Nara Research and Development Center	111,585	112,775	109,050	101,513	93,807	-7.6
Branch and sales offices and others	44,346	43,193	44,768	55,237	8,001	-85.5
Total	617,085	606,035	564,792	599,016	483,733	-19.2
·						
Energy usage per unit of sales [GJ/billion yen]	59.8	56.8	43.9	43.3	31.0	-28.4
Other countries' plant						
Tampere plant (Finland)	56,804	59,481	57,067	54,805	51,413	-6.2
Suzhou plant (China)	64,486	72,824	76,348	77,560	83,871	8.1
Total	121,290	132,305	133,415	132,365	135,284	2.2
[Consolidated]						
Energy usage	738,375	738,340	698,207	731,381	617,922	-15.5
Energy usage per unit of [GI/billion yen]	64.5	62.0	47.0	45.2	31.6	-30.0

64.5

62.0

47.0

45.2

31.6

-30.0

[GJ/billion yen]

Waste reduction and Recycling [tons]

[Japan]

Omerational site			Year	ended March	1 31		%Change
Operational site		2012	2013	2014	2015	2016	2016/2015
Osaka Office and Osaka Plant	Emissions	306	336	296	331	136	-58.8
	Recycled resources	237	272	241	321	132	-59.1
	Final disposal	3.4	3.1	11.4	2.0	0.2	-88.9
Noto Plant	Emissions	1,467	1,484	1,320	1,532	1,580	3.1
	Recycled resources	1,455	1,484	1,320	1,532	1,580	3.1
	Final disposal	0.6	0.1	0.1	0.1	0.0	-100.0
Shiga Product Supply Center	Emissions	380	378	262	146	405	176.6
	Recycled resources	380	378	262	146	405	176.6
	Final disposal	0.0	0.0	0.0	0.0	0.0	_
Nara Research and Development Center	Emissions	149	146	130	111	103	-6.8
	Recycled resources	22	8	71	71	97	35.8
	Final disposal	22.8	29.4	11.9	8.7	0.2	-97.6
Total	Emissions	2,303	2,344	2,008	2,121	2,224	4.9
	Recycled resources	2,094	2,142	1,894	2,071	2,213	6.8
	Final disposal	26.8	32.7	23.3	10.7	0.4	-96.0
[Other countries' plant]							
Tampere plant (Finland)	Emissions	1,098	1,190	1,171	1,055	992	-6.0
	Recycled resources	283	294	237	252	263	4.4
	Final disposal	21.8	25.3	17.9	7.6	6.5	-14.2
Suzhou plant (China)	Emissions	33	50	34	43	58	36.7
-	Recycled resources	15	17	11	15	25	66.9
	Final disposal	18.3	32.9	23.0	27.5	33.0	20.0
·						·	
Consolidated Total	Emissions	3,434	3,585	3,213	3,219	3,274	1.7
	Recycled resources	2,391	2,452	2,142	2,338	2,501	7.0
	Final disposal	66.9	90.8	64.2	45.8	39.9	-12.8

Water resource protection [km³]

[Japan]

[Japan]							
Operational site			Year	ended March	ı 31		%Change
Operational site		2012	2013	2014	2015	2016	2016/2015
Osaka Office and Osaka Plant	Consumption	74	67	44	60	5	-91.4
	Discharge	54	47	44	60	5	-91.4
Noto Plant	Consumption	324	257	239	247	271	9.8
	Discharge	225	225	214	225	215	-4.3
Shiga Product Supply Center	Consumption	69	82	75	71	94	32.2
	Discharge	60	65	48	52	69	34.7
Nara Research and Development Center	Consumption	49	52	46	41	41	-1.6
•	Discharge	31	33	46	41	41	-1.6
Total	Consumption	516	459	405	419	411	-1.9
	Discharge	369	370	352	377	330	-12.4
[Other countries' plant]							
Tampere plant (Finland)	Consumption	66	70	50	53	51	-3.8
Suzhou plant (China)	Consumption	36	33	34	44	57	29.5
Consolidated Total	Consumption	618	562	489	516	519	0.6

Amounts of PRTR substances handled [kg]

[Japan]

substances			%Change			
substances	2012	2013	2014	2015	2016	2016/2015
Acetonitrile	2,071	1,819	1,602	1,407	1,776	26.2
Boron and its compounds	705	636	632	646	695	7.5
Xylene	390	256	220	166	166	0.3
Chloroform	430	364	139	12	28	133.3
Norman hexane	615	350	108	6	22	266.7
Formaldehyde	76	314	63	16	16	0.0
Others	726	521	239	171	102	-40.4
Total	4,398	3,910	2,895	2,418	2,783	15.1

Note: The data included chemical materials used more than 1kg in a year

The number of substances over 1kg used per year	19	19	24	19	18	-5.3
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