Data

Scope of environmental management: All domestic offices of Taisho Pharmaceutical (such as the head office, five branch offices, five logistics centers, three factories, and the Research Center) and Taisho Toyama Pharmaceutical Co., Ltd., MEJIRO KOSAN Co., Ltd., and Taisho Pharmaceutical Logistics Co., Ltd. out of its group companies are within the scope of environmental management. However, the affiliated offices of the branch offices of Taisho Toyama Pharmaceutical Co., Ltd. are not included.

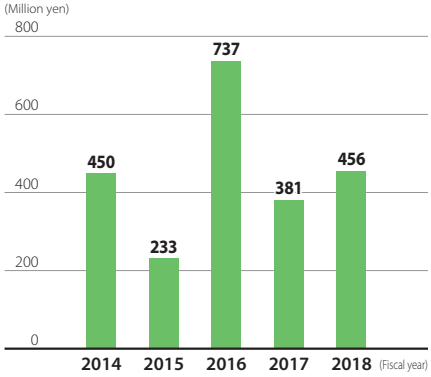
Environmental Accounting

Environmental accounting is based on the calculations according to the Taisho Pharmaceutical Environmental Management Accounting Preparation Procedures (Rev. 2), which is based on Environmental Accounting Guidelines 2005 published by the Ministry of the Environment. [Target period: April 1, 2018 to March 31, 2019]

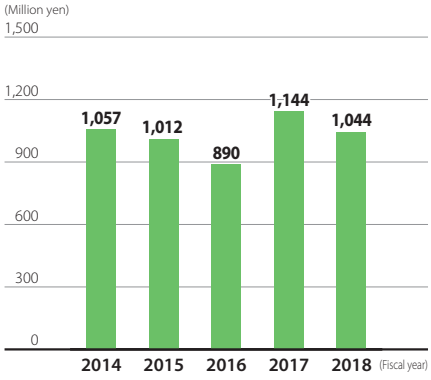
Environmental Conservation Costs

Category		Main initiative	Invested cost (Million yen)	Cost (Million yen)
Costs in the business area			423	783
Breakdown	Pollution control cost	Operation and management of the effluent treatment facility/ Implementation of air pollution preventive measures	5	221
Breakdown	Global environmental conservation cost	Support for energy saving and introduction of energy-saving facilities/ Operation and management of the cogeneration system	416	439
Breakdown	Resource recycling cost	Recycling promotion/Waste treatment	2	123
Up/downstream cost		Outsourcing cost for recommodification of containers and packaging/ Waste product treatment	0	201
Management activity cost		Monitoring of environmental loads/ Compliance and operation of ISO 14001	33	44
Research and development cost		Research and development for environmentally friendly products/ Purchasing of raw materials for research	0	0
Social activity cost		Activity costs of and donation to industry groups	0	0
Environmental damage solution cost		Implementation of soil and groundwater pollution measures	0	24
Total			456	1,044

Invested Amounts



Costs



Environmental Conservation Costs

Details of effects			FY2017	FY2018	Reduced volume	Reduction rate (%)
Effects on environmental conservation that correspond to the costs in the business area (Resources)	Total energy input (thousand GJ)		1,258	1,142	116	9.2
	Breakdown	Power consumption (10,000 kWh)	6,856	6,718	138	2.0
	Breakdown	Usage of city gas (thousand m³)	7,941	7,462	479	6.0
	Breakdown	Usage of Bunker A (kL)	1,133	1,194	(61)	(5.4)
	Breakdown	Usage of LPG (m³)	778	696	82	10.5
	Breakdown	Usage of gasoline (kL)	2,692	2,491	201	7.5
	Breakdown	Usage of light fuel oil (kL)	0	0	—	—
	Usage of water (thousand m³)		769	707	62	8.1
	Breakdown	Usage of groundwater	514	461	53	10.3
	Breakdown	Usage of tap water (domestic water)	237	224	13	5.5
	Breakdown	Usage of industrial water	13	19	(6)	(46.2)
	Breakdown	Usage of greywater (rain water)	5	3	2	40.0
	Transaction volume of specific chemical substances* (tons)		369	212	157	42.5
Effects on environmental conservation that correspond to the costs in the business area (Emissions)	Volume of CO_2 emissions (tons)		61,603	58,723	2,880	4.7
	Breakdown	Emission volume from production and office work activities	53,804	48,456	5,348	9.9
	Breakdown	Emission volume from sales and logistics activities	12,745	10,266	2,475	19.5
	Total waste volume (tons)		5,428	4,564	864	15.9
	Final landfill disposal volume (tons)		12	11	1	8.3
	Total emission volume (thousand m³)		512	454	58	11.3

* Based on the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Economic Effects Regarding Environmental Conservation Costs

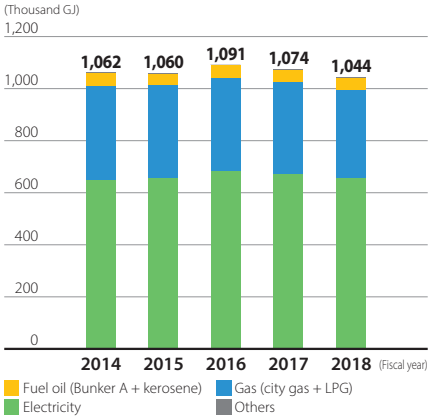
Details of effects		Amount (Million yen)
Revenue	Economic income regarding recycling	1.4
Reduced cost	Reduced cost from energy saving	12.3
Reduced cost	Reduced cost from reduction of product containers	0.0
Total		13.7

Items	Amount (Million yen)
Total invested amount during the relevant period	5,259
Total R&D cost during the relevant period	20,801

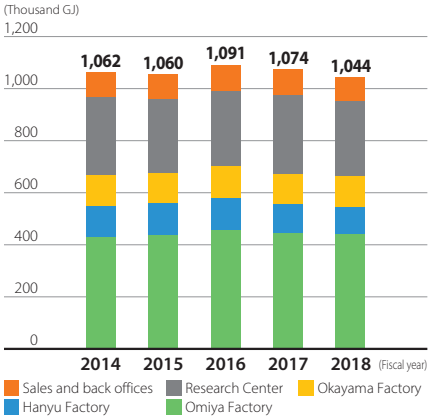
Resource Loading Volume

Energy

Energy Input (by Type)

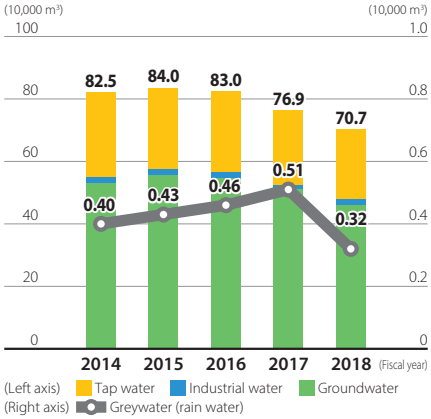


Energy Input (by Office)

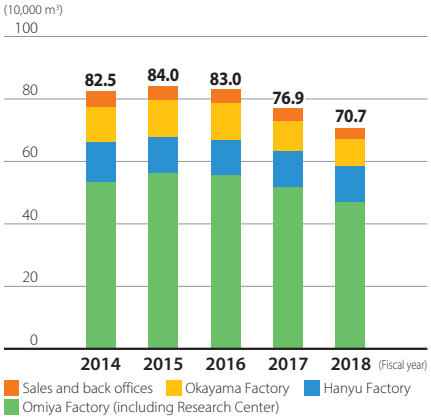


Water

Usage of Water (by Type)

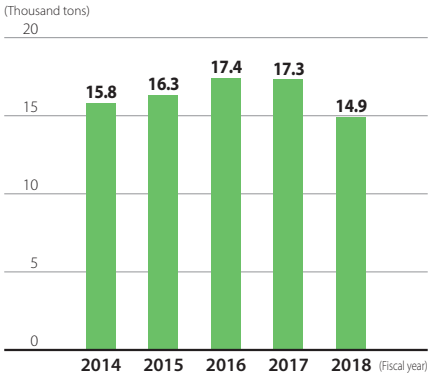


Usage of Water (by Office)

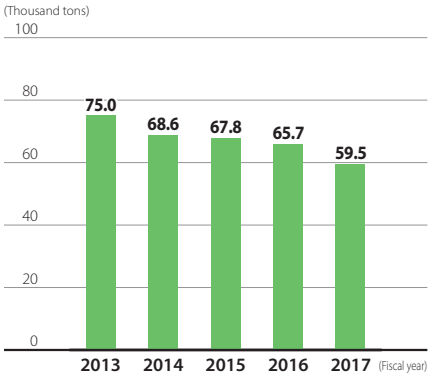


Raw Materials

Usage of Raw Materials

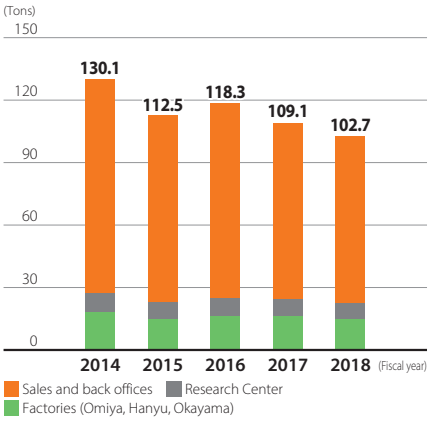


Usage of Materials (Four Materials Specified in the Containers and Packaging Recycling Act)



Copier Paper

Purchased Volume of Copier Paper



Chemical Substances

Transaction, Release, and Displacement Volumes of Chemical Substances Based on the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof—Omiya Factory (including Research Center)

No.	Chemical substance	Cabinet ordinance No.	Transaction volume	Release volume into the atmosphere	Release volume into public water	Displacement volume into the sewer	Release volume into soil	Decontamination treatment volume	Displacement volume to waste
1	Acetonitrile	013	92,000	18	0	720	0	0	92,000
2	Chloroform	127	2,500	2.7	0	47	0	0	2,300
3	Normal-hexane	392	3,100	15	0	3.0	0	0	3,000

(Unit: kg)

Transaction Volume of Specific Chemical Substances Based on the Ordinance on Living Environment Conservation in Saitama City (Article 74, Paragraph 2)—Omiya Factory (including Research Center)

No.	Chemical substance	Category of specific chemical substance	Transaction volume	Breakdown of the transaction volume		
				Usage	Produced volume	Transaction volume
4	N, N-Dimethylformamide	Class I Designated Chemical Substances (Item 232)	950	950	0	0
5	Toluene	Class I Designated Chemical Substances (Item 300)	920	920	0	0
6	Hydrogen chloride (including hydrochloric acid)	Other specific chemical substances (Item 5)	10,000	10,000	0	0
7	Diethanolamine	Other specific chemical substances (Item 14)	1,200	1,200	0	0
8	Tetrahydrofuran	Other specific chemical substances (Item 24)	62,000	62,000	0	0
9	Methanol	Other specific chemical substances (Item 35)	20,000	20,000	0	0
10	Methyl iodide	Other specific chemical substances (Item 39)	6,000	6,000	0	0

No. 1 to 3 chemical substances are the same as specified in the notification that is based on the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof.

(Unit: kg)

Transaction Volume of Specific Chemical Substances Based on the Ordinance on Living Environment Conservation in Saitama Prefecture—Hanyu Factory

No.	Chemical substance	Category of specific chemical substance	Transaction volume	Breakdown of the transaction volume		
				Usage	Produced volume	Transaction volume
1	Hydrogen chloride (including hydrochloric acid)	Other specific chemical substances (Item 5)	13,000	13,000	0	0

(Unit: kg)

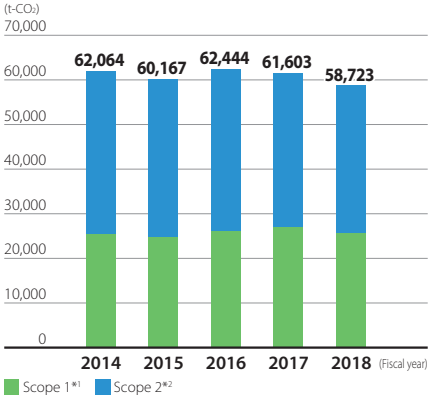
Various Emissions

Factors used to calculate the CO_2 emission volume

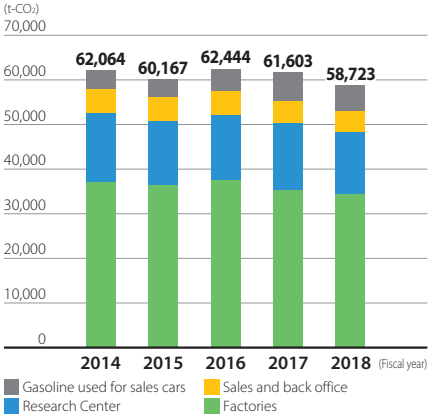
Emission factors for CO_2 and energy are those from the Act on Promotion of Global Warming Countermeasures
(List of calculation methods and emission factors on calculation, report, and publication methods)
Electricity: Emission factors after adjustment for each electricity utility operator as specified by the Ministry of the Environment's paper on "Factors Related to Emissions by Electricity Utility Operator (for Calculating Carbon Dioxide Equivalents for Greenhouse Gas Emissions from Specified Emitters)"
Bunker A: 2.710 t-CO_2/kL; Light fuel oil: 2.585 t-CO_2/kL; Propane gas: 2.999 t-CO_2/t; City gas: 2.244 t-CO_2/1000 m^3; Gasoline 2.322 t-CO_2/kL; Non-industrial steam: 0.057 t-CO_2/GJ

CO_2

Total Emission Volume (Scope 1, 2)



Total Emission Volume (by Office in Japan)



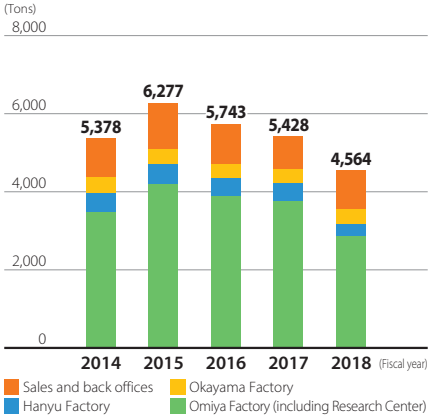
Calculation of CO_2 Emissions (Scope 3) at Value Chain (Scope of Data Collection: Taisho Pharmaceutical Holdings (Offices in Japan))

Category		CO_2 emission volume (t-CO_2) 2017	CO_2 emission volume (t-CO_2) 2018	Basic unit of emissions, etc.
Scope 1*1		27,201	25,766	Using global warming potential based on "Act on Promotion of Global Warming Countermeasures"
Scope 2*2		34,402	32,956	
Scope 3*3				
1	Purchased products & services	56,110	51,107	Calculated by aggregating each purchased raw material, then multiplying by the basic units
2	Capital goods	13,745	14,883	Calculated by multiplying the amount of capital investment in the fiscal year by the basic units
3	Fuel and energy-related activity not included in Scope 1 & 2	2,447	2,414	Calculated by multiplying the amount of used electricity/heat by the basic units for the amount of energy used
4	Transport, delivery (upstream)	9,508	9,704	Calculated by multiplying the delivery volume from suppliers to factories, between factories, and from factories to shipping destinations by the basic units
5	Waste of business activities including manufacturing	3,743	2,953	Calculated by categorizing the waste generated by factories and research centers by treatment, then multiplying the weight of treated waste by the basic units
6	Business trips	754	703	Calculated by multiplying the expense amount supplied to use aircraft (domestic and overseas) by the basic units
7	Commute of employees	2,157	2,065	Calculated by multiplying the expense amount supplied for commuting expenses for each mode of transportation by the basic units
8	Lease asset (upstream)	Outside scope of calculation		—
9	Transport, delivery (downstream)	Outside scope of calculation		—
10	Manufacturing of sold products	Outside scope of calculation		—
11	Usage of sold products	Outside scope of calculation		—
12	Waste of sold products	930	889	Calculated by multiplying the usage amount of each material at the time of application under the Containers and Packaging Recycling Act by the basic units
13	Lease assets (downstream)	Outside scope of calculation		—
14	Franchise	Outside scope of calculation		—
15	Investment	Outside scope of calculation		—

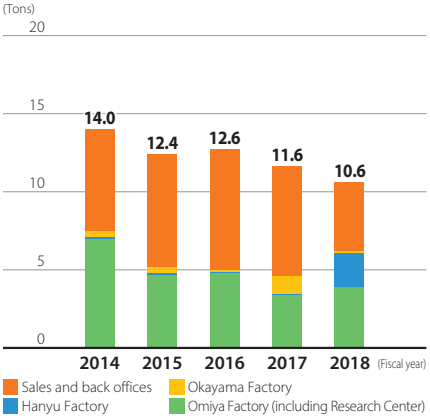
Basic units: Referenced from the Ministry of the Environment's Basic Guidelines on Accounting for Greenhouse Gas Emissions throughout the Supply Chain (Ver. 2.5)
*1: Direct greenhouse gas emissions produced by a company
*2: Indirect greenhouse gas emissions from consumption of purchased electricity, heat, and steam
*3: Indirect greenhouse gas emissions not covered in Scope 1 & 2

Waste

Total Emission Volume—Whole Company (by Office)

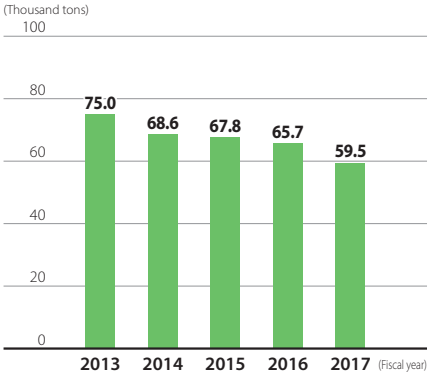


Final Landfill Disposal Volume—Whole Company (by Office)



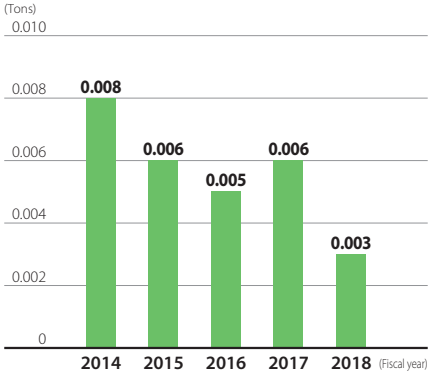
Data Associated with the Containers and Packaging Recycling Act

Usage of Materials (Four Materials Specified in the Containers and Packaging Recycling Act)

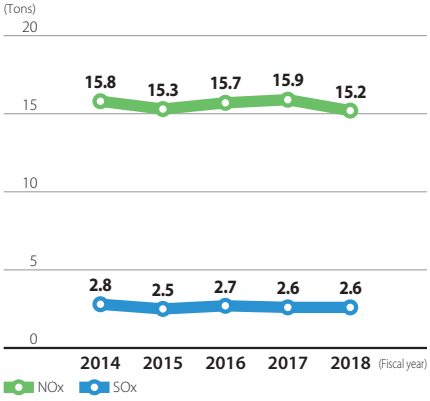


Emission into the Atmosphere

Chloroform—Production Division

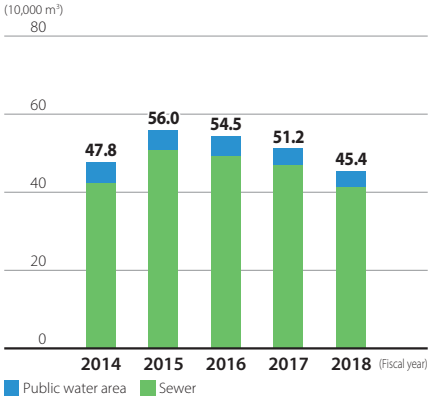


NOx and SOx Emission Volumes—Production and Research

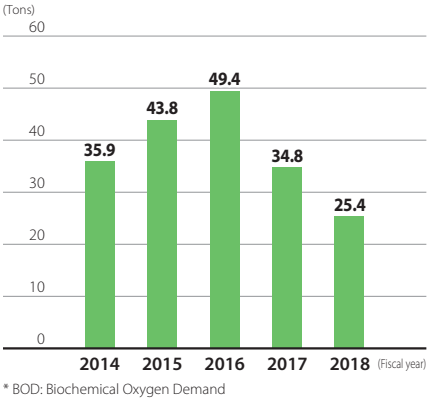


Water Quality

Total Emission Volume—Whole Company



BOD* Emission Volume—Production and Research



* BOD: Biochemical Oxygen Demand

PCB Waste

PCB Waste and PCB Devices in Use

	Storage	Devices in use
Reagent	6.6 g	—
Low-pressure capacitor	—	—
High-pressure capacitor	—	—
Fluorescent ballast	1,287 devices	—
Mercury lamp ballast	9 devices	—
High-pressure transformer	1 device (low density)	11 devices (low density)

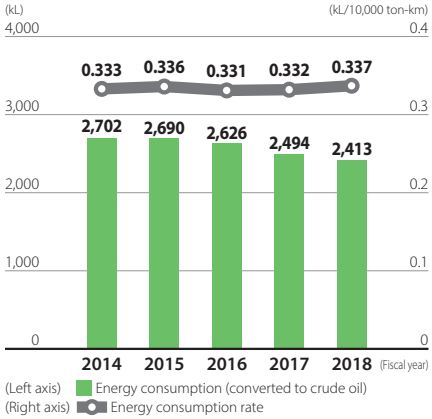
Data Associated with Sales and Transport

Conversion factors used to calculate CO_2 and NOx emission volumes from the usages of gasoline and light fuel oil

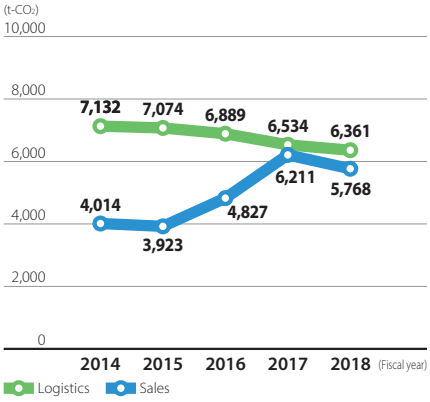
[CO_2 emission volume] Gasoline: 2.322 kgCO_2/L; Light fuel oil: 2.585 kgCO_2/L
(According to the Guidelines for Calculating CO_2 Emissions Caused by Energy in the Global Warming Countermeasures Planning System and Targeted Emission Volume Transaction System (Revised in March 2017) based on the Saitama Prefecture Ordinance to Promote Measures Against Global Warming)

[NOx emission volume] Gasoline: 8.2 kg/kL; Light fuel oil: 18.3 kg/kL
(According to the Environmental Activity Evaluation Program (Eco-Action 21), March 2001)

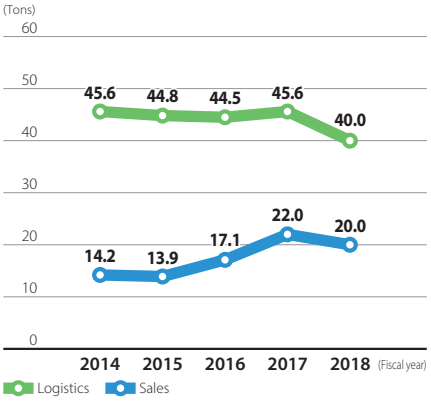
Energy Consumption and Specific Energy Consumption Associated with Transport



CO_2 Emission Volume Associated with Sales and Transport, etc.



NOx Emission Volume Associated with Sales and Transport



Transported Quantity of Products by Transport Method

Fiscal year	2014		2015		2016		2017		2018	
	Transport amount (10,000 ton-km)	Percentage	Transport amount (10,000 ton-km)	Percentage	Transport amount (10,000 ton-km)	Percentage	Transport amount (10,000 ton-km)	Percentage	Transport amount (10,000 ton-km)	Percentage
Total transport amount	8,104	100.0	8,000	100.0	7,934	100.0	7,507	100.0	7,169	100.0
Truck	6,099	75.3	5,770	72.1	5,708	71.9	5,451	72.6	5,078	70.8
Railway	534	6.6	748	9.4	868	10.9	754	10.0	684	9.5
Ship	1,470	18.1	1,482	18.5	1,358	17.1	1,302	17.3	1,406	19.6

Data by Office

Measurement Results of Regulated Items in FY2018

Omiya Factory (including Research Center)

Regulated item			Reference value	Actual value
Atmosphere	NOx	Once-through boiler	—	—
		Water-tube boiler	Less than 130 ppm	78~87 ppm
		Suction-type cool and warm water generator	Less than 150 ppm	17~30 ppm
		Gas turbine	Less than 70 ppm	13~19 ppm
Water quality	Hydrogen-ion concentration (pH)	Industrial sewage	More than 5~Less than 9	5.8~8.6
	Biochemical oxygen demand		Less than 600 mg/L	5~287 mg/L
	Suspended solids		Less than 600 mg/L	1~71 mg/L
	Nitrogen		Less than 240 mg/L	2.1~7.7 mg/L
	Phosphorus		Less than 32 mg/L	1.0~1.2 mg/L

Hanyu Factory

Regulated item			Reference value	Actual value
Atmosphere	NOx	Once-through boiler	—	—
	Dust		—	—
Water quality	Hydrogen-ion concentration (pH)	Industrial sewage	More than 5.8~less than 8.6	6.9~7.7
	Biochemical oxygen demand		Less than 5 mg/L	<1 mg/L
	Suspended solids		Less than 10 mg/L	<2 mg/L
	Nitrogen		Less than 25 mg/L	1.6~3.9 mg/L
	Phosphorus		Less than 3 mg/L	<0.1 mg/L

Okayama Factory

Regulated item			Reference value	Actual value
Atmosphere	NOx	Once-through boiler	—	49~94 ppm
	Dust		—	0.001~0.005 g/m^{3}N
Water quality	Hydrogen-ion concentration (pH)	Industrial sewage	More than 5~Less than 9	5.9~7.1
	Biochemical oxygen demand		Less than 600 mg/L	26~280 mg/L
	Suspended solids		Less than 600 mg/L	2.2~50.0 mg/L
	Nitrogen		Less than 240 mg/L	2.3~4.9 mg/L
	Phosphorus		Less than 32 mg/L	0.1~0.4 mg/L

Data on Overseas Manufacturing Subsidiaries (Reference)

		PT. Taisho Pharmaceutical Indonesia Tbk	Hoepharma Holdings Sdn. Bhd.	Taisho Co., Ltd. Shanghai	Taisho Pharmaceutical (M) SDN. BHD.	Taisho Vietnam Co., Ltd.	Compañía Internacional de Comercio, S.A.P.I. de C.V. (CICSA)
Energy consumption	Electricity (kWh)	3,131,720	3,165,368	927,040	609,292	630,132	1,202,640
	Heavy fuel oil (kL)	—	—	—	—	4	—
	Light fuel oil (kL)	—	—	219	—	1	0
	LPG (m^3)	—	—	—	—	7	8
	City gas (m^3)	145,650	—	—	84,699	383	—
Waste volume	Recycled volume (tons)	242	—	9	—	22	19
	Incineration disposal volume (tons)	45	110	0	—	—	21
	Landfill disposal volume (tons)	—	—	—	—	—	576
Sewage water quality	Chemical oxygen demand (mg/L)	2~163	24~93	20~433	13~165	4~50	—
	Biochemical oxygen demand (mg/L)	0~60	6~27	—	2~41	3~28	—