EFFORTS REGARDING MANUFACTURING AND LOGISTICS

Energy - and Global-Warming-Related Issues

Mazda promotes the efficient use of energy while aiming to reduce CO_2 emissions in the areas of manufacturing and logistics.

【Manufacturing】Total CO_2 Emissions from Mazda's Four Principal Domestic Sites Reduced by 47.0% (Compared with FY March 1991 Levels)

Measures to reduce the total energy-related CO_2 emissions from Mazda's four principal domestic sites*1 (including R&D and other indirect areas) in FY March 2017 were as follows:

<Key Initiatives in FY March 2017> a b

- Further implementation of *Monotsukuri* Innovation
- Improvements in overall facility operating efficiency
- Concentrating production and reducing losses from unnecessary work and equipment downtime

<FY March 2017 Results (compared with FY March 1991)>

- Total CO_2 emissions from Mazda's four principal domestic plants reduced by 47.0% compared with FY March 1991 (499 thousand tons-CO_2)
- Emissions per unit of sales revenue reduced by 52.5% (20.1 t-CO_2/100 million yen)

【Manufacturing】Efforts for Energy-Saving Manufacturing

At production sites in Japan and abroad, improving the facility operation rate, shortening cycle time, and other measures are being taken to optimize the line process as well as the entire manufacturing process. Also, losses in each step from production to consumption of energy are reanalyzed to further cut losses, including cutting losses by suspending the power supply (for hydraulic pressure, etc.) during standby.

<Efforts at Overseas Plants>

Thailand

AutoAlliance (Thailand) (AAT) carried out the following activities.

- Preventing wasteful supply of compressed air and steam at plants (e.g., closing valves during non-production time), so as to reduce electricity consumption by 501,000 kWh/year.
- Cutting energy losses, including standby power consumption during launch time, non-production time, holidays and a shutdown period, so as to reduce electricity consumption by 307,476 kWh/year.

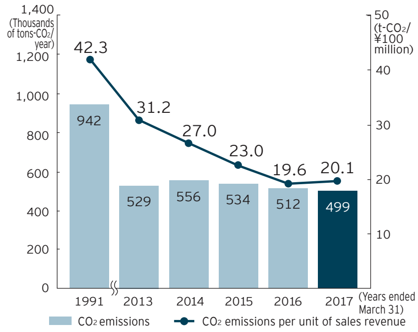
Mazda Powertrain Manufacturing (Thailand) (MPMT) set up the Energy Committee comprising members selected from each department, to promote energy-saving activities, obtaining the following results.

- Achieving a reduction of 11,100 kWh/year in electricity consumption, by reviewing the residual heat temperature of the heat treatment equipment at the transmission plant.
- Achieving a reduction of 101,360 kWh/year in electricity consumption, by reviewing the air conditioning settings, while striving to reduce the air conditioning energy load through partially opening the plant building's walls to actively let in natural wind so as to lower the temperature within the plant.

China

Changan Ford Mazda Engine Co., Ltd. (CFME) reduced electricity consumption by 780,000 kWh/year, and natural gas consumption by 46,000 m3N/year, through activities for energy-saving in producing a small quantity of aluminum cast components (such as improving the heat retaining property of the holding furnace, which stocks molten metal).

a CO_2 Emissions from Mazda's Four Principal Domestic sites/CO_2 Emissions per Unit of Sales Revenue

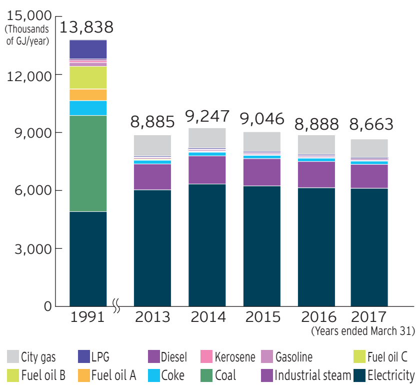


*CO_2 emissions at Mazda's four principal domestic sites are calculated using the CO_2 coefficient for each year based on standards from the Japan Automobile Manufacturers Association Inc. (JAMA) (Commitment to a Low Carbon Society). Data for each fiscal year were recalculated according to the coefficient change of August 10, 2016.
The power coefficient for FY March 2017 is undetermined as of May 19, 2017; the FY March 2016 power coefficient is used for FY March 2017.
*The figures of the CO2 emissions at Mazda's four principal domestic sites in FY March 2017 have been verified by a third party (see p. 139).

b Energy Consumption Breakdown at Mazda's Four Principal Domestic Plants

Unit: (Thousands of GJ/year)

	FY March 1991	FY March 2013	FY March 2014	FY March 2015	FY March 2016	FY March 2017
Electricity	4,921	6,044	6,345	6,247	6,150	6,124
Industrial steam	0	1,337	1,453	1,409	1,359	1,236
Coal	4,967	0	0	0	0	0
Coke	766	193	191	170	171	168
Fuel oil A	596	24	23	27	19	15
Fuel oil B	11	0	0	0	0	0
Fuel oil C	1,168	38	28	6	6	7
Gasoline	193	66	65	65	64	52
Kerosene	101	4	15	8	11	11
Diesel	81	39	37	43	47	46
LPG	989	50	54	52	55	55
City gas	45	1,090	1,036	1,019	1,006	949
Total	13,838	8,885	9,247	9,046	8,888	8,663



* Amount of heat emission at Mazda's four principal domestic facilities is calculated using the CO_2 coefficient for each year based on standards from the Japan Automobile Manufacturers Association Inc. (JAMA) (Commitment to a Low Carbon Society). Past data was recalculated according to the change of the coefficient.

*1 Head office (Hiroshima); Miyoshi Plant; Hofu Plant, Nishinoura District; Hofu Plant, Nakanoseki District (including nonmanufacturing areas such as product development)

【Manufacturing】Reducing Energy Use through "*Monotsukuri* Innovation"

To improve quality and brand value, as well as to increase profit margins, while flexibly responding to the requirements for the manufacture of several models with different production scales and changes in production volume, a breakthrough in "sharing a completely new concept beyond the boundaries of models" is necessary. This idea has resulted in generation of the "*Monotsukuri* Innovation" (see p. 126).

Under "*Monotsukuri* Innovation," at the timing of introducing new models equipped with the SKYACTIV TECHNOLOGY, Mazda has substantially reduced per-unit energy consumption. The specific efforts are as follows.

- Material: Reduced material weight by using thinner casted and forged parts, shortening the forging cycle time, and modifying production methods, so as to reduce energy consumption.
- Processing and assembly: Evolved conventional flexible manufacturing lines to realize higher-efficiency, mixed flow production, which resulted in dramatically improved operating rates and reduced energy consumption.
- Press: Reduced the amount of scraps generated in manufacturing of press parts, and retrieved parts from scraps to reduce the amount of use of steel sheets. Also achieved multi-pressing, which performs molding of several parts using a single die, resulting in both integration of processes and reduction of energy consumption.
- Paint: Developed and introduced the Aqua-Tech Paint System, a new water based painting technology that enables elimination of the primer process while further improving the painting performance and quality, resulting in reduced energy use for air conditioners in painting booths, and substantial reduction of VOC (volatile organic compound) emissions.

【Logistics】CO_2 Emissions during Product Shipment Reduced by 39.7% (Compared with FY March 1991 Levels)

Mazda is working with logistics companies, dealerships, and other automakers throughout Japan to reduce CO_2 emissions during product shipment. C

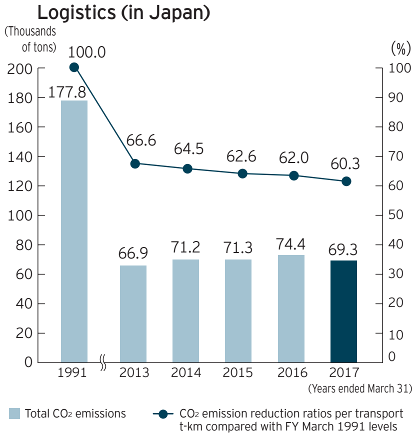
Mazda has expanded its tracking capability for CO_2 emissions during the import/export of finished vehicles and parts overseas since FY March 2011. Although the end of the tracking line used to be overseas ports, the Company began to extend this line to inland distributors, in cooperation with logistics-related companies in major markets.

<FY March 2017 Results>

- Total domestic transportation volume (including the purchase and supply of materials, parts and finished vehicles) was 590 million ton-kilometers.

  This represents a 39.7% reduction in transportation CO_2 emissions per ton-kilometer compared with FY March 1991 levels, far exceeding the Company's target of 29% or more.

C CO_2 Emissions and Reductions for Logistics (in Japan)



【Logistics】Realizing Logistics that Enables CO_2 Reduction in a Timely Manner

Mazda is taking the following measures to provide customers with the volume they require, with the precise timing they expect, while reducing CO_2 emissions.
Efforts to focus on the following three pillars of logistics are being taken by visualizing in detail the hidden logistics issues in each process on a global level.

1. Hub-and-spoke system for transportation of completed vehicles and service parts*1 d

- Reforming transportation by consolidating logistics centers for completed vehicles

  Mazda consolidated its logistics centers nationwide with the aim of combining delivery routes with low shipping volumes while ensuring timely shipments (and finished the consolidation in FY March 2012).

  Continuously reviewing the operation of domestic vessels (car carriers) according to their shipping volumes has enabled the Company to improve loading efficiency. To make more effective use of the domestic vessels on the return journey, collaborative transportation has also been promoted with other companies.

  In February 2016, Mazda started the operation of a new domestic vessel. In May of the same year, existing vessels were modified, resulting in a 30% improvement in transportation capacity.

- Improving the ratio of modal shift for the transportation of service parts

  Mazda is striving to improve the rate of modal shift regarding the transportation of service parts.

  In May 2016, the Company started to use large returnable containers, originally designed to transport parts overseas, for domestic transportation. This was aimed at reducing transportation CO_2 emissions by improving the load efficiency of JR containers and reducing the number of shipping containers required.

2. "Straightening" of logistics network

- Straight logistics without distribution centers (Vanning at plant, packaging at plant) e

  After manufacture of KD*2 parts is complete, they are packaged and loaded into containers at the same location, eliminating the need for shipment between production and packaging locations. At present, the coverage of this logistics system is expanding to engines, transmissions and auto body parts produced at Hiroshima Plant and Hofu Plant.

- Reducing the transportation distance for procured parts for overseas production

  Previously, the parts procured in Asia to be used for overseas production were transported via Japan to the Mexico plant. In July 2016, this was changed to direct transportation, so that now these parts are transported from existing distribution centers in Thailand and China, leading to a reduced transportation distance.

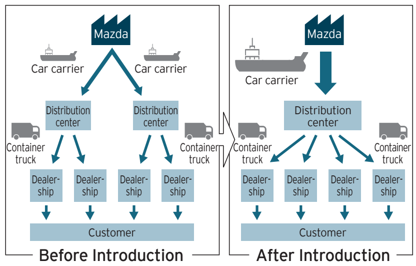
- Reducing losses repair parts in transportation

  Mazda continued to reduce losses in transportation by setting up vanning sites for bumpers as close as possible to their production sites, and increased the number of available shipping destinations.

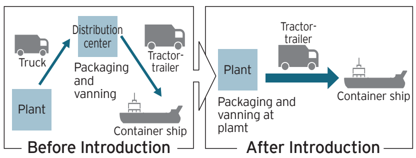
3. Continuous improvement to the *Milk-Run* System*3 f

In purchasing production parts, deployment of the *Milk-Run* system was completed throughout Japan by FY March 2008. Today, Mazda is introducing the same system in overseas production sites, with deployment in the Mexico plant completed in FY March 2014, and in the transmission plant in Thailand completed in FY March 2016, aiming to reduce CO_2 emissions by further promoting efficiency in the purchasing and logistics processes across the entire supply chain.
The Company is continuing its initiatives to optimize its packaging volume for purchasing parts, reflecting the logistics needs at the beginning of the product development process, so as to further improve the load efficiency of trucks and reduce the number of trucks required.

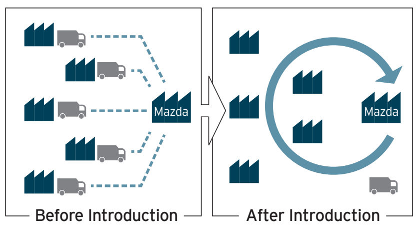
d Hub-and-Spoke System



e Logistics without Distribution Centers (Vanning at plant)



f *Milk-Run* System



*1 In the "hub-and-spoke" system, distribution centers around the country (hubs) act as bases for delivering completed vehicles to dealerships (spokes). In transporting service parts, parts suppliers serve as the hubs and vehicle dealerships the spokes.
*2 A manufacturing method wherein parts are exported to overseas production sites, where they are assembled onsite.
*3 A method in which a single truck visits multiple suppliers to collect supplies. Named after truck routes in rural areas, which picked up milk from each farm.

Promoting Resource Recycling

Mazda builds resource-saving initiatives into every phase of the life cycle of its vehicles, based on the three Rs: reduce, reuse, and recycle. The Company implements thorough recycling and waste-reduction initiatives in the areas of manufacturing and logistics as well, in order to ensure that limited resources are used effectively.

【Manufacturing】Maintaining the Status of Zero Landfill Waste and Promoting the Reduction of Waste

To reduce landfill waste at its four principal domestic facilities*1 to zero, Mazda is promoting reductions in the volume of manufacturing byproducts and waste, more rigorous sorting of waste, and recycling. As a result, the Company has achieved zero landfill waste, and has maintained this status from FY March 2009 to FY March 2017. The amount of waste*2 in FY March 2017 was reduced by 82% compared with FY March 1991 levels. g h

<Efforts at Overseas Plants >

Thailand

AutoAlliance (Thailand) (AAT) and Mazda Powertrain Manufacturing (Thailand) (MPMT) are working to reduce the volume of waste and thoroughly enforcing the sorting of waste to promote recycling.

【Logistics】Reducing Volume of Packaging and Wrapping Materials

Mazda is moving forward with efforts centering on the "three Rs of Mazda logistics" to cut down on resources used for packaging and wrapping. The target for packaging and wrapping materials was a reduction in volume of 48% or more from FY March 1991 levels; in FY March 2017, a 55%*3 reduction was achieved.

Since FY March 2013, furthermore, Mazda has been continuing activities to reflect logistics needs at the beginning of product development, so as to include improvement of packaging and wrapping specifications in the product design and development processes. These activities, targeting parts to be shipped to overseas KD*4 production sites, aim to achieve an ideal form of transportation by considering efficient logistics in the development stage of work processes, from design to production and shipment, and optimizing parts specifications and structures.

In FY March 2015, the Company applied this approach to an even wider variety of models. And for some parts, the Company enabled the containers that are used to hold double the previous volume of parts.

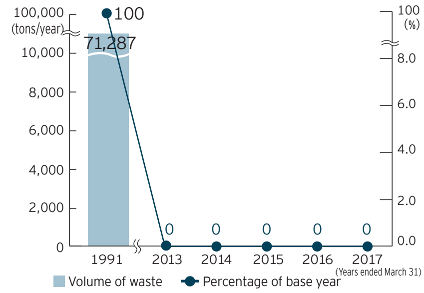
To help realize the global procurement of parts, the Company has established a distribution center in Thailand, thereby promoting even more effective transportation. At the same time, for transportation to Japan, as well as parts transportation covering (some) suppliers in Thailand, the Company has considerably reduced waste volumes, by reusing packaging and wrapping materials and containers from Japan to Thailand and vice versa.

In FY March 2016, the Company succeeded in reducing waste generated from repackaging by enabling the supply of parts provided by suppliers in Thailand to the production line in the packaging that they came in.

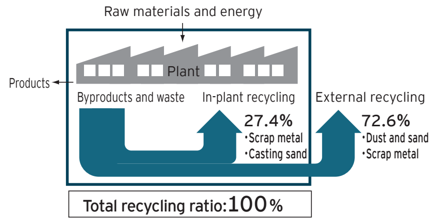
In FY March 2017, departments in the five areas—development, production, procurement (purchasing), logistics and quality—are closely working together to achieve the optimization of parts procurement and vehicle manufacturing from the stage of product development, and to establish strong cooperation with the supply chain.

Mazda will continue promoting and expanding these activities that involve efforts in different areas, so as to reduce the consumption of materials. i

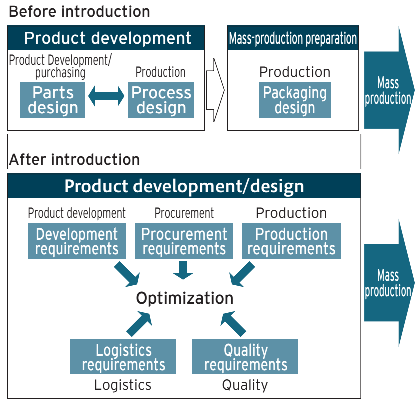
g Changes in the Amount of Landfill Waste



h FY March 2017 Recycling of Manufacturing Byproducts and Waste in the Manufacturing Areas



i Activities Image



*1 Head office (Hiroshima); Miyoshi Plant; Hofu Plant, Nishinoura District; Hofu Plant, Nakanoseki District (including nonmanufacturing areas such as product development)

*2 The figures of the amount of waste at four principal domestic sites in FY March 2017 have been verified by a third party (see p. 139).

*3 Forecasted reduction rate compared with measures similar to those performed in FY March 1991

*4 A manufacturing method wherein parts are exported to overseas production sites, where they are assembled onsite.

Cleaner Emissions

To preserve water and air quality, Mazda has specified voluntary emission standards stricter than the legal requirements and is ensuring appropriately low emissions of pollutants. In the area of manufacturing, the Company is engaged in a range of initiatives to eliminate or reduce chemical substances that damage the environment.

【Manufacturing】Clean Water Consumption at Mazda's Four Principal Domestic Sites*1 Reduced by 30.9% Compared with FY March 2013 Levels

With the exception of its Miyoshi Plant, nearly all the water Mazda uses in production processes at the plants and offices in Japan is water for industrial use. The Company does not use subsurface water, as this may cause ground subsidence. Mazda also makes effective use of water by collecting and storing rainwater for use in the Miyoshi Plant. Furthermore, the Company is committed to saving clean water consumption at plants and offices. j
In FY March 2017, Mazda introduced water-saving shower caps in office kitchenettes and sinks of work areas throughout the entire Company. However, the clean water consumption increased, since the Company had to replenish clean water when coping with failure of the industrial water transfer pump, clogging of makeup water piping in the cooling tower, and suspension of industrial water supply. When discharging wastewater to public waterworks, Mazda maintains voluntary standards stricter than the legal requirements, and manages discharge daily. The Company also ensures wastewater cleanliness by properly treating water used for industrial processes, human hygiene, and other purposes. k

<Overseas Activities>

China

Changan Ford Mazda Engine Co., Ltd., (CFME) located in Nanjing, China, in 2014 started to change the cooling water in production processes and sprinkling water for green spaces from clean water to recycled wastewater. This has enabled CFME to reduce the clean water consumption by 50 thousand m^3 per year.

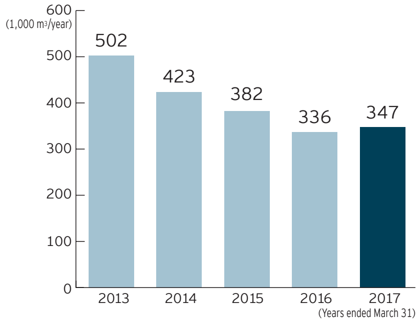
Mexico

Mazda de Mexico Vehicle Operation (MMVO) enjoys a high reputation as the first automobile plant to be granted a local environmental license before the beginning of operations. MMVO established an aeration fountain in the balancing reservoir (containing rainwater) in the plant in 2014. The stirring of the water in the balancing reservoir helps prevent the generation of algae, while the aeration (for mixing air) promotes the decomposition of water-polluting substances.
By implementing these measures, MMVO has improved the quality of its discharged water, and also provided a beautiful to look at fountain. MMVO continues its efforts in treating the wastewater discharged from the production process at the wastewater treatment facility within the plant, and using the recycled water for watering green spaces in the plant. In FY March 2017, the amount of recycled water that MMVO used for watering green spaces in the plant was around 90 thousand m^3. By doing this, MMVO significantly reduced its use of well water.

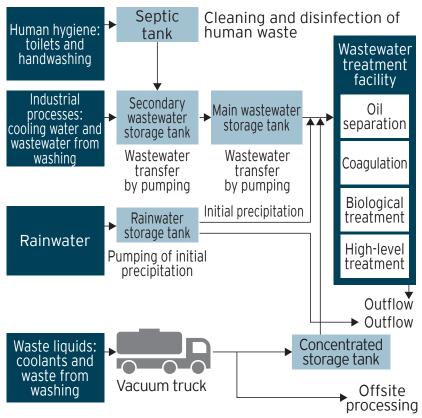
Thailand

AutoAlliance (Thailand) (AAT) achieved a 13% reduction compared with 2015 levels to 1.90 m^3/unit (2015: 2.19 m^3/unit) by optimizing the water supply control of rinse tanks in the pre-electrodeposition coating treatment process.

j Clean Water Consumption at Four Principal Domestic Sites*1



k Overview of Wastewater Treatment System (Hiroshima Plant)



【Manufacturing】Air Pollution Prevention: Actively Adopting Fuels that Reduce Environmental Burdens

Mazda is continuing efforts to reduce the emission of sulfur oxides (SOx), nitrogen oxides (NOx),dust and soot, fine particles, vapors, and volatile organic compounds (VOCs).
In addition, Mazda is shifting the use of fuel oil to that of city gas and makes other efforts to actively adopt materials that reduce the environmental burden.

VOC Reductions: Body-Painting Lines

In FY March 2017, Mazda made steady progress toward achieving the target of reducing VOC emissions from vehicle body paint in body-painting lines to 22.0 g /m^2 or less.
The target was achieved by reducing VOC emissions in body painting lines to 22.0 g/m^2, as a result of various measures. Such measures include the Three Layer Wet Paint System introduced as the standard process in all plants in Japan and major plants overseas, the Aqua-Tech Paint System (see p. 74) that delivers world-leading environmental performance, a low-VOC paint that the Company developed and introduced, and improved efficiency in thinner recovery in cleaning operations.

*1 Head office (Hiroshima); Miyoshi Plant; Hofu Plant, Nishinoura District; Hofu Plant, Nakanoseki District (including nonmanufacturing areas such as product development)

【Manufacturing】Reducing Emissions of PRTR-Listed Substances

With various efforts, such as improvements to the efficiency of thinner recovery for cleaning operation, in FY March 2017 the amounts of substances that are designated under the PRTR Law*1 released into the water system and the atmosphere decreased by 62% from FY March 1999 levels, to 1,048 tons. Mazda will continue working to reduce emissions of PRTR designated substances.

*1 Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof. PRTR: Pollutant Release and Transfer Register

FY March 2017 Data on Water and Atmosphere

Water Pollutants

Wastewater Drainage Destination: Enko River and Kaita Bay

Site	Water Pollutants	Unit	Regulation	Actual		
				Max.	Min.	Avg.
Hiroshima Plant	pH (freshwater)	—	5.8~8.6	7.5	6.7	7.0
	pH (seawater)	—	5.5~9.0	7.7	6.9	7.3
	BOD	mg/L	160	5.1	ND	<1.6
	COD	mg/L	20	10	1.7	4.2
	SS	mg/L	200	8.2	ND	<3.8
	Oil	mg/L	5	ND	ND	ND
	Fluorine (freshwater)	mg/L	8	0.2	ND	<0.15
	Fluorine (seawater)	mg/L	15	8.6	0.1	3.1
	Copper	mg/L	3	0.01	ND	<0.01
	Zinc	mg/L	2	0.63	ND	<0.14
	Soluble iron	mg/L	10	0.2	ND	<0.1
	Soluble manganese	mg/L	10	1	ND	<0.3
	Chromium	mg/L	2	0.02	ND	<0.01
	Total nitrogen	mg/L	120	11	1.2	4.4
	Total phosphorus	mg/L	16	1.9	0.01	0.2
	Coliform groups	colonies/cm^3	3,000	100	ND	<21
	Boron (freshwater)	mg/L	10	0.2	ND	<0.1
	Boron (seawater)	mg/L	230	2	0.2	1.3
	Ammonia, ammonium, nitrous acid, and nitrous acid compounds	mg/L	100	4.4	1.2	2.6

The following substances were not detected: cadmium, cyanogen, organic phosphorus, lead, hexavalent chromium, arsenic, mercury, alkyl mercury, PCBs, trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, 1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,3-dichloropropene, thiuram, simazine, thiobencarb, benzene, selenium, 1,4-dioxane, and phenol.

Wastewater Drainage Destination: Basen River

Site	Water Pollutants	Unit	Regulation	Actual		
				Max.	Min.	Avg.
Miyoshi Plant	pH	—	5.8~8.6	7.9	7.2	7.5
	BOD	mg/L	90	1.6	0.8	1.1
	SS	mg/L	90	4.6	1	2.1
	Oil	mg/L	5	ND	ND	ND
	Fluorine	mg/L	8	0.3	0.3	0.3
	Zinc	mg/L	2	0.01	0.01	0.01
	Soluble iron	mg/L	10	0.3	0.3	0.3
	Soluble manganese	mg/L	10	0.3	ND	<0.2
	Total nitrogen	mg/L	120	2	2	2
	Total phosphorus	mg/L	16	0.02	0.02	0.02
	Coliform groups	colonies/cm^3	3,000	ND	ND	ND
	Ammonia, ammonium, nitrous acid, and nitrous acid compounds	mg/L	100	1.3	1.3	1.3

The following substances were not detected: cadmium, cyanogen, organic phosphorus, lead, hexavalent chromium, arsenic, mercury, alkyl mercury, PCBs, trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, 1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,3-dichloropropene, thiuram, simazine, thiobencarb, benzene, selenium, 1,4-dioxane, phenol, copper, chromium and boron.

Wastewater Drainage Destination: Oumi Bay

Site	Water Pollutants	Unit	Regulation	Actual		
				Max.	Min.	Avg.
Nishinoura District, Hofu Plant	pH	—	5.0~9.0	7.1	6.3	6.8
	COD	mg/L	50	13	1.7	7.7
	SS	mg/L	40	5.8	2.6	4.2
	Oil	mg/L	2	ND	ND	ND
	Zinc	mg/L	2	0.4	0.1	0.2
	Total nitrogen	mg/L	120	10.5	0.5	3.6
	Total phosphorus	mg/L	16	3.2	0.1	1.5
	Coliform groups	colonies/cm^3	3,000	40	15	28
	Boron	mg/L	230	1.3	0.7	1.0
	Fluorine	mg/L	15	5.4	3.2	4.3
	Ammonia, ammonium, nitrous acid, and nitrous acid compounds	mg/L	100	5.0	0.5	2.7

The following substances were not detected: cadmium, cyanogen, organic phosphorus, lead, hexavalent chromium, arsenic, mercury, alkyl mercury, PCBs, trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, 1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,3-dichloropropene, thiuram, simazine, thiobencarb, benzene, selenium, 1,4-dioxane, phenol, copper, soluble iron, soluble manganese, and chromium.

Wastewater Drainage Destination: Oumi Bay

Site	Water Pollutants	Unit	Regulation	Actual		
				Max.	Min.	Avg.
Nakanoseki District, Hofu Plant	pH	—	5.0~9.0	7.8	6.5	7.5
	COD	mg/L	50	8.2	3.1	4.6
	SS	mg/L	40	7.8	0.8	2.8
	Oil	mg/L	2	ND	ND	ND
	Zinc	mg/L	2	0.1	0.05	0.07
	Copper	mg/L	3	0.01	0.01	0.01
	Soluble iron	mg/L	3	0.1	ND	<0.1
	Soluble manganese	mg/L	3	0.3	0.2	0.25
	Total nitrogen	mg/L	120	13.3	2.9	6.8
	Total phosphorus	mg/L	16	1.2	0.1	0.4
	Coliform groups	colonies/cm^3	3,000	180	ND	<90
	Fluorine	mg/L	15	0.1	ND	<0.06
	Ammonia, ammonium, nitrous acid, and nitrous acid compounds	mg/L	100	6.3	5.2	5.8

The following substances were not detected:cadmium, cyanogen, organic phosphorus, lead, hexavalent chromium, arsenic, mercury, alkyl mercury, PCBs, trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, 1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,3-dichloropropene, thiuram, simazine, thiobencarb, benzene, selenium, 1,4-dioxane, phenol, chromium, and boron.

Atmospheric Pollutants

Site	Atmospheric Pollutants		Unit	Regulation	Actual (Max.)
Hiroshima Plant	NOx	Boilers	ppm	150	51
		Drying ovens	ppm	250	84
				230	72
		Melting furnaces	ppm	180	87
		Diesel engines	ppm	950	490
		Heating furnaces	ppm	200	48
				180	<25
				150	130
	Dust	Boilers	g/m^3N	0.25	0.0011
				0.1	0.0014
		Drying ovens	g/m^3N	0.4	0.0049
				0.35	0.0049
				0.2	0.0047
				0.15	0.0047
		Melting furnaces	g/m^3N	0.4	0.0074
				0.20	0.095
				0.10	0.0015
		Diesel engines	g/m^3N	0.10	0.019
		Heating furnaces	g/m^3N	0.4	0.0023
				0.25	0.03
				0.20	0.058
	SOx	K-value regulation	—	7	0.69
	VOC	Painting facilities	ppm	700	369
		Washing facilities	ppm	400	116
Miyoshi Plant	NOx	Boilers	ppm	250	150
		Diesel engines	ppm	950	580
	Dust	Boilers	g/m^3N	0.30	0.012
		Diesel engines	g/m^3N	0.10	0.077
Nishinoura District, Hofu Plant	NOx	Boilers	ppm	150	140
				130	83
		Drying ovens	ppm	230	51
	Dust	Boilers	g/m^3N	0.10	0.004
		Drying ovens	g/m^3N	0.35	0.003
				0.30	0.003
				0.20	0.006
	SOx	K-value regulation	—	4.5	0.014
		Total pollutant load control	m^3N/h	36.16	0.069
	VOC	Painting facilities	ppm	700	340
Nakanoseki District, Hofu Plant	NOx	Melting furnaces	ppm	180	48
	Dust	Heating furnaces	g/m^3N	0.25	0.002
				0.20	0.002
		Melting furnaces	g/m^3N	0.20	0.07
	SOx	K-value regulation	—	4.5	0.11
		Total pollutant load control	m^3N/h	17.47	0.89

Volume of PRTR-designated Pollutants Emitted and Transferred in FY March 2017

(Items marked with an asterisk (*) are Class 1 designated chemical substances of which 500 kg/year or more are handled.)

Hiroshima Plant

Unit: (kg/year)

Substance No.	Substance group	Amount handled				Volume emitted	Amount consumed	Amount disposed	Amount transferred	Amount recycled
			Air	Water	Soil				Waste products	
1	Water-soluble zinc compounds	27,104	0	434	0	434	23,689	2,981	0	0
37	4,4'-isopropylidenediphenol	3	0	0	0	0	0	3	0	0
53	Ethyl benzene	159,761	82,411	0	0	82,411	37,454	35,223	0	4,673
80	Xylene	556,830	238,642	0	0	238,642	156,363	97,771	0	64,054
87	Chromium and trivalent chromium compounds	42,396	0	0	0	0	41,841	0	554	1
88*	Hexavalent chromium compounds	1,351	0	0	0	0	797	554	0	0
258	1,3,5,7-tetraazetoricyclo[3.3.1.1$^{3.7}$] decane	1,215	0	0	0	0	0	1,215	0	0
277	Triethylamine	176,796	1,061	0	0	1,061	0	175,735	0	0
296	1,2,4-trimethylbenzene	176,108	26,685	0	0	26,685	97,627	51,796	0	0
297	1,3,5-trimethylbenzene	38,783	16,554	0	0	16,554	2,440	13,624	0	6,165
300	Toluene	805,949	228,580	0	0	228,580	332,547	207,367	0	37,455
308	Nickel	1,180	0	0	0	0	1,180	0	0	0
309*	Nickel compounds	4,912	0	589	0	589	1,695	0	2,628	0
349	Phenol	29,680	1	1	0	2	0	29,678	0	0
355	Bis (2-ethylhexyl) phthalate	17,670	0	0	0	0	17,140	530	0	0
374	Hydrogen fluoride and its water-soluble salts	6,810	0	1,090	0	1,090	0	5,720	0	0
392	n-Hexane	121,690	304	0	0	304	104,992	16,394	0	0
400*	Benzene	24,225	30	0	0	30	19,138	5,057	0	0
411*	Formaldehyde	4,994	1,734	0	0	1,734	0	3,260	0	0
412	Manganese and its compounds	50,700	0	375	0	375	48,115	0	2,140	70
438	Methylnaphthalene	804	4	0	0	4	0	800	0	0
448	Diisocyanate (methylene-bis [4,1-phenylene])	206,316	0	0	0	0	0	206,316	0	0
453	Molybdenum and its compounds	1,023	0	0	0	0	519	0	47	457
302	Naphthalene	12,556	119	0	0	119	0	12,410	0	27
	Total	2,468,856	596,125	2,489	0	598,614	885,537	866,434	5,369	112,902

Miyoshi Plant

Substance No.	Substance group	Amount handled				Volume emitted	Amount consumed	Amount disposed	Amount transferred	Amount recycled
			Air	Water	Soil				Waste products	
53	Ethyl benzene	2,283	0	0	0	0	0	2,283	0	0
80	Xylene	9,695	1	0	0	1	0	9,694	0	0
296	1,2,4-trimethylbenzene	6,297	1	0	0	1	0	6,296	0	0
297	1,3,5-trimethylbenzene	896	0	0	0	0	0	896	0	0
300	Toluene	27,519	10	0	0	10	0	27,509	0	0
392	n-Hexane	4,236	11	0	0	11	0	4,225	0	0
400*	Benzene	1,014	1	0	0	1	0	1,013	0	0
438	Methylnaphthalene	3,912	20	0	0	20	0	3,892	0	0
	Total	55,852	44	0	0	44	0	55,808	0	0

Nishinoura District, Hofu Plant

Substance No.	Substance group	Amount handled				Volume emitted	Amount consumed	Amount disposed	Amount transferred	Amount recycled
			Air	Water	Soil				Waste products	
1	Water-soluble zinc compounds	14,782	0	237	0	237	12,919	1,626	0	0
53	Ethyl benzene	100,863	66,470	0	0	66,470	23,863	10,530	0	0
80	Xylene	242,202	111,817	0	0	111,817	99,461	19,453	0	11,471
296	1,2,4-trimethylbenzene	118,294	27,750	0	0	27,750	61,735	9,747	0	19,062
297	1,3,5-trimethylbenzene	20,608	12,005	0	0	12,005	234	3,129	0	5,240
300	Toluene	476,727	228,856	0	0	228,856	199,086	27,405	0	21,380
309*	Nickel compounds	2,897	0	348	0	348	999	0	1,550	0
355	Bis (2-ethylhexyl) phthalate	2,556	0	0	0	0	2,479	77	0	0
392	n-Hexane	72,137	181	0	0	181	70,739	1,217	0	0
400*	Benzene	12,696	16	0	0	16	12,466	214	0	0
411*	Formaldehyde	3,789	1,364	0	0	1,364	0	2,425	0	0
412	Manganese and its compounds	4,004	0	214	0	214	2,540	0	1,220	30
	Total	1,071,555	448,459	799	0	449,258	486,521	75,823	2,770	57,183

Nakanoseki District, Hofu Plant

(No applicable chemical substances subject to reporting. (The volume of the PRTR-designated groups' substances handled is less than the designated volume subject to reporting.)

Company Total

Substance No.	Substance group	Amount handled				Volume emitted	Amount consumed	Amount disposed	Amount transferred	Amount recycled
			Air	Water	Soil				Waste products	
	Total	3,611,383	1,044,632	3,288	0	1,047,920	1,372,058	1,013,181	8,139	170,085