Atmosphere/Wastewater Quality/PRTR-designated Pollutants Data (Results from FY2020)

Explanation of values

The regulation values indicate the strictest values in the text of laws, regulations and pollution prevention agreements. For atmospheric emissions, the maximum values are indicated.
Regarding PRTR, Class I Designated Chemical Substances that are handled at a volume of a 1 t/year or more are listed.
Technical words in the charts
NOx: Nitrogen oxide SOx: Sulfur oxide BOD: Biochemical oxygen demand COD: Chemical oxygen demand SS: Concentration of suspended solids in water

Atmospheric pollutants

Okazaki Plant

Atmospheric pollutants	Equipment	Unit	Regulation	Actual (maximum)
NOx	Boiler (Large-type, NO_2)	ppm	120	61
	(Other)	ppm	120	72
	Drying furnace (for coating)	ppm	120	44
Soot dust	Boiler	g/Nm³	0.1	0.005
	Drying furnace (for coating)	g/Nm³	0.1	0.002
SOx (sulfur in fuel regulations)		wt%	0.5	–
Formaldehyde	Drying furnace	mg/m³	30	5.6

Mizushima Plant

Atmospheric pollutants	Equipment	Unit	Regulation	Actual (maximum)
NOx	Boiler (Steam)	ppm	150	–
	(Heating)	ppm	150	65
	(Small-type)	ppm	150	45
	(Absorption- type air conditioner)	ppm	180	59
	(Booth fan heating facility)	ppm	100	<15
	Drying furnace	ppm	230	44
	Melting furnace	ppm	200	<27
	Metal heating furnace	ppm	180	40
	Total amount	Nm³/h	12.749	7.284
Soot dust	Boiler	g/Nm³	0.1	0.01
	Boiler (Booth fan heating facility only)	g/Nm³	0.03	<0.0005
	Drying furnace	g/Nm³	0.1	0.071
	Melting furnace	g/Nm³	0.1	<0.001
	Metal heating furnace	g/Nm³	0.1	0.018
SOx (sulfur in fuel regulations)		wt%	0.50	0.48

Mizushima Plant (Harmful gases (Okayama Prefecture regulations))

Atmospheric pollutants	Unit	Regulation	Actual (maximum)
Acrylonitrile	ppm	40	<0.1
Acetonitrile	ppm	80	<0.1
Formaldehyde	ppm	10	0.8
Cyan and its compounds	ppm	10	–
Carbon disulfide	ppm	40	–
Phenol	ppm	10	0.2
Styrene	ppm	200	<0.1
Benzene	ppm	50	1.3
Phosgene	ppm	0.1	–
Vinyl chloride	ppm	500	–

Kyoto Plant – Kyoto

Atmospheric pollutants	Equipment	Unit	Regulation	Actual (maximum)
NOx	Boiler	ppm	150	78
	Drying furnace	ppm	230	≦93
	Melting furnace	ppm	200	≦56
	Metal heating furnace	ppm	180	≦110
Soot dust	Boiler	ppm	0.1	≦0.0080
	Drying furnace	ppm	0.2	0.0027
	Melting furnace	ppm	0.1	0.0096
	Metal heating furnace	ppm	0.2	0.029
SOx (sulfur in fuel regulations)		wt%	0.5	0
Dioxin	Drying furnace	ng-TEQ/Nm³	1	0.041
	Melting furnace	ng-TEQ/Nm³	1	0.48

Kyoto Plant – Shiga

Atmospheric pollutants	Equipment	Unit	Regulation	Actual (maximum)
NOx	Boiler	ppm	150	63
Soot dust	Boiler	g/Nm³	0.1	≦0.0049

Water pollutants

Okazaki Plant

Water pollutants	Unit	Regulation		Actual (Maximum)		
		Daily average shown in parentheses		Maximum	Minimum	Average
pH	–	5.8～8.6		7.7	6.7	7.2
BOD	mg/L	25	(20)	7.3	1.9	4
COD	mg/L	25	(20)	3.1	0.7	1.6
SS	mg/L	30	(20)	6.0	1.0	1.2
Oil	mg/L	2		<0.50	<0.50	<0.50
Copper	mg/L	0.5		<0.01	<0.01	<0.01
Zinc	mg/L	1		0.3	0.02	0.09
Soluble iron	mg/L	3		<0.01	<0.01	<0.01
Soluble manganese	mg/L	3		<0.10	<0.10	<0.10
Chromium	mg/L	0.1		<0.02	<0.02	<0.02
E-coli	Unit/cm³	300		550	30	49
Total nitrogen	mg/L	15		8.80	0.40	5.04
Total phosphorus	mg/L	2		0.42	0.06	0.19
Fluorine	mg/L	4.0		0.58	0.1	0.28
COD total amount	kg/day	61.6		15.1	0.4	4.8
Total amount of total nitrogen	kg/day	71.5		13.1	0.5	4.8
Total amount of total phosphorus	kg/day	8.6		13.6	0.5	7.0

- Other than the above, the following were all below lower limits (not detected): Cyan, hexavalent chromium, cadmium, organic phosphorus, lead, phenol, trichloroethylene, 1,1,1-trichloroethane, alkyl mercury, PCB, selenium, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, dichloromethane, cis-1,2-dichloroethylene, tetrachloroethylene, 1,1,2-trichloroethane, benzene, 1,3-dichloropropene, simazine, and thiram, thiobencarb.

Mizushima Plant

Water pollutants		Unit	Regulation		Actual (Maximum)		
			Daily average shown in parentheses		Maximum	Minimum	Average
pH	**Rivers**	–	6～8		7.9	6.8	7.3
	Seas	–	6～8		7.8	6.9	7.3
BOD	**Rivers**	mg/L	30	(20)	27	<0.5	1.8
COD	**Rivers**	mg/L	30	(20)	20	1.6	6.6
	Seas	mg/L	20	(15)	6.7	0.8	2.9
SS	**Rivers**	mg/L	40	(20)	3.0	<1	<1
	Seas	mg/L	40	(20)	<2.5	<1	<1
Oil	**Rivers**	mg/L	2	(1)	1.1	<0.5	<0.5
	Seas	mg/L	2	(1)	<0.5	<0.5	<0.5
Zinc	**Rivers**	mg/L	2		0.09	<1	0.09
	Seas	mg/L	2		0.06	<0.06	0.06
Soluble iron	**Rivers**	mg/L	10		<0.01	<0.01	<0.01
	Seas	mg/L	10		<0.01	<0.01	<0.01
Soluble manganese	**Rivers**	mg/L	10		0.20	<0.2	<0.2
	Seas	mg/L	10		<0.01	<0.01	<0.01
E-coli	**Rivers**	Unit/cm³	3,000		22	22	22
	Seas	Unit/cm³	3,000		11	11	11
Total nitrogen	**Rivers**	mg/L	120	(60)	14	1.2	7.6
	Seas	mg/L	120	(60)	3.6	0.5	2
Total phosphorus	**Rivers**	mg/L	16	(8)	5.3	0.1	1.6
	Seas	mg/L	16	(8)	0.1	0.1	0.1
Boron	**Rivers**	mg/L	10		<0.1	<0.1	<0.1
	Seas	mg/L	230		<0.1	<0.1	<0.1
Fluorine	**Rivers**	mg/L	8		2.3	0.3	1.3
	Seas	mg/L	15		<0.2	<0.2	<0.2
Ammonia, ammonium compounds, nitrites, and nitric compounds	**Rivers**	mg/L	100		7.8	3.4	5.6
	Seas	mg/L	100		1.9	1	1.5
COD Total amount		kg/day	294		121.9	2.6	23.5
Total amount of total nitrogen		kg/day	123		48.2	3.2	25.3
Total amount of total phosphorus		kg/day	47.8		22.4	0.2	5.4

- Other than the above, the following were all below lower limits (not detected): Copper, lead, cyan, total chromium, hexavalent chromium, cadmium, organic phosphorus, total mercury, arsenic, phenol, trichloroethylene, trichloroethane, alkyl mercury, PCB, selenium, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, dichloromethane, cis-1,2-dichloroethylene, tetrachloroethylene, 1,1,2-trichloroethane, benzene, 1,3-dichloropropene, simazine, thiram, and thiobencarb.

Water pollutants

Kyoto Plant - Kyoto

Water pollutants		Unit	Regulation	Actual (Maximum)		
				Maximum	Minimum	Average
pH		–	5～9	6.8	6	6.4
BOD		mg/L	600	230	8.1	76
SS		mg/L	600	51	6	21
Oil	Mineral oil	mg/L	5	<1	<1	<1
Oil	Animal and vegetable oils	mg/L	30	12.6	1	4.8
Soluble iron		mg/L	10	0.65	0.07	0.21
Soluble manganese		mg/L	10	0.71	0.22	0.42
Total nitrogen		mg/L	240	54.4	1.05	22.7
Total phosphorus		mg/L	32	0.9	<0.1	0.2
Arsenic		mg/L	0.1	<0.05	<0.05	<0.05
Dioxins		pg-TEQ/L	10	<0.0005	<0.0005	<0.0005

- All drainage from processes is discharged to sewers, and the items for analysis have been determined in an agreement with the government of Kyoto City.

Kyoto Plant - Shiga

Water pollutants	Unit	Regulation	Actual (Maximum)		
			Maximum	Minimum	Average
pH	–	5～9	8.1	6.5	7.4
BOD	mg/L	600	22	<0.1	5.2
SS	mg/L	600	11.5	<5.0	5.3
Oil	mg/L	5	1.5	<1	1
Total nitrogen	mg/L	60	7.9	0.3	3.5
Total phosphorus	mg/L	10	0.8	<0.1	0.3

- All drainage from processes is discharged to sewers, and the items for analysis have been determined in an agreement with the government of Konan City.

PRTR-designated pollutants

Okazaki Plant

NO.	Substance name	Unit	Amount handled	Emissions volume		Removal volume		Recycled volume	Consumed volume	Removal treatment volume
				Atmosphere	Public waters	Sewage line	Waste			
1	Water-soluble zinc compounds	kg/year	6,592	0	45	0	1,648	0	4,899	0
53	Ethyl benzene	kg/year	27,233	13,099	0	0	400	2,726	5,873	5,135
71	Ferric chloride	kg/year	3,820	0	0	0	0	0	0	3,820
80	Xylene	kg/year	62,265	15,956	0	0	395	1,819	24,991	19,104
239	Organic tin compounds (Dibutyltin oxide)	kg/year	1,475	0	0	0	221	0	1,254	0
240	Styrene	kg/year	0	0	0	0	0	0	0	0
296	1,2,4-Trimethylbenzene	kg/year	31,351	4,121	0	0	406	5	13,260	13,559
297	1,3,5-Trimethylbenzene	kg/year	4,103	1,054	0	0	117	2	20	2,910
300	Toluene	kg/year	175,424	26,584	0	0	1,102	35,595	42,461	69,682
302	Naphthalene	kg/year	500	323		0	15	0	0	162
309	Nickel compounds	kg/year	669	0	53	0	384	0	232	0
392	n-Hexane	kg/year	10,613	68	0	0	3	0	4,581	5,961
400	Benzene	kg/year	4,471	15	0	0	0	0	2,801	1,655
411	Formaldehyde	kg/year	0	0	0	0	0	0	0	0
412	Manganese and its compounds	kg/year	1,934	0	115	0	665	0	1,154	0
Total		kg/year	330,450	61,220	213	0	5,356	40,147	101,526	121,988

- Amount handled=Emission+transport volume+recycled volume+consumed volume+removal processed volume
- Consumed volume: Volume transformed to other substances by means of a reaction or contained within a product
- Removal treatment volume: Volume transformed to other substances by means of incineration, decomposition or reaction

PRTR-designated pollutants

Mizushima Plant

NO.	Substance name	Unit	Amount handled	Emissions volume		Removal volume		Recycled volume	Consumed volume	Removal treatment volume
				Atmosphere	Public waters	Sewage line	Waste			
1	Water-soluble zinc compounds	kg/year	15,356	0	599	0	4,273	0	10,483	0
53	Ethyl benzene	kg/year	7,284	2,721	0	0	206	4,163	47	147
80	Xylene	kg/year	42,119	3,196	0	0	230	4,510	34,020	164
188	N, N-Dicyclohexylamine	kg/year	1,348	0	0	0	1,348	0	0	0
239	Organic tin compounds	kg/year	4,122	0	0	0	206	0	3,916	0
296	1,2,4- Trimethylbenzene	kg/year	39,553	14,395	0	0	866	0	22,295	1,997
297	1,3,5- Trimethylbenzene	kg/year	5,056	4,164	0	0	253	0	56	583
300	Toluene	kg/year	85,604	359	0	0	0	10,061	75,184	0
309	Nickel compounds	kg/year	3,139	0	346	0	1,646	0	1,147	0
392	n-Hexane	kg/year	32,149	180	0	0	0	0	31,968	0
400	Benzene	kg/year	5,509	17	0	0	0	0	5,492	0
407	Polyoxyethylene alkyl ether	kg/year	9,704	0	97	0	9,607	0	0	0
411	Formaldehyde	kg/year	2,079	1,853	0	0	0	0	0	226
412	Manganese and its compounds	kg/year	3,137	0	166	0	1,190	0	1,767	14
438	Methylnaphthalene	kg/year	3,926	217	0	0	0	0	3,709	0
Total		kg/year	260,083	27,101	1,208	0	19,824	18,734	190,084	3,132

- Amount handled=Emission+transport volume+recycled volume+consumed volume+removal processed volume
- Consumed volume: Volume transformed to other substances by means of a reaction or contained within a product
- Removal treatment volume: Volume transformed to other substances by means of incineration, decomposition or reaction

PRTR-designated pollutants

Kyoto Plant

NO.	Substance name	Unit	Amount handled	Emissions volume		Removal volume		Recycled volume	Consumed volume	Removal treatment volume
				Atmosphere	Public waters	Sewage line	Waste			
37	**Bisphenol A**	kg/year	2,993	0	0	0	0	0	2,984	9
53	**Ethyl benzene**	kg/year	4,008	1	0	0	0	0	4,007	0
80	**Xylene**	kg/year	18,431	6	0	0	0	0	18,425	0
258	**Hexamethylenetetramine**	kg/year	22,176	0	0	0	0	0	15,523	6,653
296	**1.2.4-Trimethylbenzene**	kg/year	21,497	6	0	0	0	0	21,490	0
297	**1.3.5-Trimethylbenzene**	kg/year	3,943	1	0	0	0	0	3,942	0
300	**Toluene**	kg/year	82,726	25	0	0	0	0	82,701	0
349	**Phenol**	kg/year	2,130	0	0	0	0	0	1,704	426
392	**n-Hexane**	kg/year	4,998	2	0	0	0	0	4,997	0
400	**Benzene**	kg/year	2,244	0	0	0	0	0	2,243	0
Total		kg/year	165,145	41	0	0	0	0	158,016	7,088
243	**Dioxins**	mg-TEQ/year		11,100						