Japan Display Inc. Environmental Data Collection

Here are the environmental data results for JDI (domestic bases) for fiscal year 2023.

1. Environmental Measurement Data

Wastewater Management

Living environment items

Name of plant	Discharge location	BOD*1 (mg/L)					COD*2 (mg/L)					SS*3 (mg/L)					Hydrogen ion concentration (pH)				
		Legal limit	JDI standards	Minimum value	Average	Maximum value	Legal limit	JDI standards	Minimum value	Average	Maximum value	Legal limit	JDI standards	Minimum value	Average	Maximum value	Legal limit	JDI standards	Minimum value	Average	Maximum value
Mobara (1)	River	10	8	<0.5	0.7	1.2	25	20	2.9	3.1	3.3	20	15	<0.5	2	5	5.8～8.6	6.0～8.4	7.3	7.5	7.7
Mobara (2)	River	10	8	<0.5	0.6	1.4	25	20	2.4	2.6	2.8	20	15	<0.5	1	5	5.8～8.6	6.0～8.4	7.0	7.2	7.4
Tottori	Sewer	600	450	31	59	130	–	–	–	–	–	600	300	5	12	27	5.0～9.0	6.0～8.7	6.9	7.1	7.3
Higashiura	River	15	12	<0.5	0.8	0.8	10	8	0.9	2.0	3.4	15	12	<1.0	5	10	5.8～8.6	6.0～8.3	7.1	7.3	7.5
Ishikawa	River	80	29	1.4	2.8	4.1	160	125	1.2	1.6	1.9	120	60	1	3	4	5.8～8.6	6.1～8.2	7.2	7.4	7.4

Name of plant	Discharge location	Normal-hexane extracts (mg/L)					Phenols (mg/L)					Phosphorus (mg/L)					Nitrogen (mg/L)				
		Legal limit	JDI standards	Minimum value	Average	Maximum value	Legal limit	JDI standards	Minimum value	Average	Maximum value	Legal limit	JDI standards	Minimum value	Average	Maximum value	Legal limit	JDI standards	Minimum value	Average	Maximum value
Mobara (1)	River	2	1.6	<0.5	<0.5	<0.5	0.50	0.40	<0.05	<0.05	<0.05	8	6.4	<0.1	<0.1	<0.1	100	80	4.3	8.8	10
Mobara (2)	River	2	1.6	<0.5	<0.5	<0.5	0.50	0.40	<0.05	<0.05	<0.05	8	6.4	<0.1	<0.1	<0.1	100	80	14	17.1	22
Tottori	Sewer	5	2.5	<1.0	1.01	1.1	5	2.5	<0.1	<0.1	<0.1	–	–	–	–	–	–	–	–	–	–
Higashiura	River	2	1.6	<0.5	<0.5	<0.5	5	4	<0.05	<0.05	<0.05	1	0.8	0.02	0.14	0.48	10	8	0.5	1.1	1.9
Ishikawa	River	5	4	<0.5	<0.5	<0.5	5	4	<0.1	<0.1	<0.1	16	14.9	0.3	1.9	3.6	120	95	3.7	4.3	4.8

Hazardous substances

Name of plant	Discharge location	Ammonia, ammonium compounds, nitrites, and nitrates (mg/L)					Boron and its compounds (mg/L)					Fluorine and its compounds (mg/L)				
		Legal limit	JDI standards	Minimum value	Average	Maximum value	Legal limit	JDI standards	Minimum value	Average	Maximum value	Legal limit	JDI standards	Minimum value	Average	Maximum value
Mobara (1)	River	100	80	3.9	8	10	10	8	0.04	0.07	0.11	8	6.4	0.3	0.5	0.7
Mobara (2)	River	100	80	12	15	18	10	8	0.10	0.25	0.52	8	6.4	0.9	2.0	2.3
Tottori	Sewer	380	190	0.9	2.5	5.2	10	5	<0.2	<0.2	<0.2	8	5	1.2	1.7	2.5
Higashiura	River	100	80	0.3	0.8	1.5	10	8	<1.0	<1.0	<1.0	8	6.5	0.3	0.4	0.9
Ishikawa	River	100	80	2.0	3.0	4.0	10	8	<0.1	<0.1	<0.1	8	6	0.3	0.5	0.8

*1 Biochemical Oxygen Demand *2 Chemical Oxygen Demand *3 Suspended Solids

Air Emissions Management

Name of plant	Once-through boiler	Number	Particulate matter*4 (g/Nm^3)			Nitrogen oxides*5 (vol ppm)			Sulfur oxides*6 (Nm^3/h)			
			Legal limit	JDI standards	Result	Legal limit	JDI standards	Result	Legal limit	JDI standards	Result	
Mobara	Once-through boiler	20	0.1	0.01	<0.01	150	120	17	–	–	–	(13/20 units suspended)
Tottori	Once-through boiler	7	0.1	0.05	<0.001	150	75	52	–	–	–	
	Absorption chiller	2	–	–	–	–	–	–	–	–	–	(2 units suspended)
Higashiura	Flue and smoke tube boiler	2	0.1	0.08	0.003	150	120	30	–	–	–	
	Multitubular once-through boiler	7	0.1	0.08	0.003	150	120	46	–	–	–	
Ishikawa	Once-through boiler	3	0.3	0.15	0.006	180	105	74	2.05	0.28	0.012	
	Flue and smoke tube boiler	2	0.3	0.15	0.012	180	164	74	6.4	3.21	0.128	
	Gas turbine	4	0.05	0.025	0.003	70	58	42	9.53	5	0.147	

*4 “Particulate matter” refers to soot and other solid particulate matter resulting from combustion.
*5 “Nitrogen oxides” is a generic term that refers to compounds that arise from a combination of nitrogen atoms (N) and oxygen atoms (O).
*6 “Sulfur oxides” is a general term for sulfur trioxide and other compounds of sulfur and oxygen, particularly sulfur dioxide (sulfurous acid gas).

Noise/vibration management:

Unit: dB

Name of plant	Category	Time period		Legal limit	JDI standards	Actual (maximums)
Mobara	Noise	Morning	06:00～08:00	65	60	55
		Daytime	08:00～19:00	70	65	61
		Evening	19:00～22:00	65	60	56
		Night	22:00～06:00	60	57	55
	Vibration	Daytime	07:00～22:00	65	60	60
		Night	22:00～07:00	60	55	37
					60*7	60*7
Tottori*8	Noise	Morning	06:00～08:00	70	70	52
				65	65	40
		Daytime	08:00～19:00	70	70	46
				65	65	48
		Evening	19:00～22:00	70	70	42
				65	65	38
		Night	22:00～06:00	65	65	42
				50	50	38
	Vibration	Daytime	08:00～19:00	65	65	34
		Night	19:00～08:00	60	60	33
Higashiura	Noise	Morning	06:00～08:00	55	55	52
		Daytime	08:00～19:00	60	60	51
		Evening	19:00～22:00	55	55	54
		Night	22:00～06:00	50	50	49
	Vibration	Daytime	07:00～22:00	60	40	24
		Night	22:00～07:00	55	40	24
Ishikawa	Noise	Morning	06:00～08:00	60	60	50
		Daytime	08:00～19:00	65	65	57
		Evening	19:00～22:00	60	60	52
		Night	22:00～06:00	50	50	50
	Vibration	Daytime	07:00～22:00	65	50	<30
		Night	22:00～07:00	60	50	<30

*7 Additional measurement points from FY2023.
*8 Noise regulation areas are of two types, differing by position at the plant ground boundary.

Odor Management

Name of plant	Items	Compounds	Units	Legal limit	JDI standards	Results	Compounds		Units	Legal limit	JDI standards	Results	Compounds		Units	Legal limit	JDI standards	Results
Mobara	No. 1 regulation (site boundary)	–	Odor inde	14	14	14	–						–					
Tottori	No. 1 regulation (site boundary)	Ammonia	ppm	5	5	<0.1	Hydrogen sulfide		ppm	0.2	0.2	<0.002	Xylene		ppm	1	1	<0.1
		Toluene	ppm	10	10	<1	–						–					
	No. 2 regulation (gas outlet)	Ammonia	m3/h	710	710	<0.0020	Toluene	Exhaust tower for organic abatemen	m3/h	1,200	1,200	—	Xylene	Exhaust tower for organic abatemen	m3/h	120	120	—
		–						Air release port for organic abatement	m3/h	890	890	<0.019		Air release port for organic abatement	m3/h	89	89	<0.0019
								Purge gas outlet for organic abatement	m3/h	1,100	1,100	—		Purge gas outlet for organic abatement	m3/h	110	110	—
	No. 3 regulation (effluent)	Hydrogen sulfide	mg/L	0.2	0.2	<0.0005	–						–					
Higashiura	No. 1 regulation (site boundary)	–	Odor inde	18	15	<10	–											
	No. 3 regulation (effluent)	–		34	27	<3												
Ishikawa	No. 1 regulation (site boundary)	Ammonia	ppm	2	1	<0.1	Methyl mercaptan		ppm	0.004	0.0012	<0.0002	Hydrogen sulfide		ppm	0.06	0.018	<0.0005
		Methyl sulfide	ppm	0.05	0.01	<0.0005	Methyl disulfide		ppm	0.03	0.009	<0.0009	Trimethylamine		ppm	0.02	0.006	<0.0005
		Propionic acid	ppm	0.07	0.03	<0.005	n-butyric acid		ppm	0.002	0.001	<0.0002	n-valeric acid		ppm	0.002	0.0009	<0.0002
		Isovaleric acid	ppm	0.004	0.001	<0.0002	Acetaldehyde		ppm	0.1	0.03	<0.005	Propionaldehyde		ppm	0.1	0.03	<0.005
		n-butyraldehyde	ppm	0.03	0.009	<0.001	Isobutyl aldehyde		ppm	0.07	0.021	<0.002	n-valeraldehyde		ppm	0.02	0.006	<0.002
		Isovaleraldehyde	ppm	0.006	0.0018	<0.001	Isobutyl alcohol		ppm	4	1.2	<0.09	Ethyl acetate		ppm	7	2.1	<0.3
		Methyl isobutyl ketone	ppm	3	0.9	<0.1	Toluene		ppm	30	9	<1	Styrene		ppm	0.8	0.24	<0.04
		Xylene	ppm	2	0.6	<0.1	–						–					
	No. 3 regulation (effluent)	Methyl mercaptan	mg/L	0.01	0.003	<0.001	Hydrogen sulfide		mg/L	0.07	0.02	<0.005	Methyl sulfide		mg/L	0.3	0.07	<0.01
		Methyl disulfide	mg/L	0.4	0.09	<0.01	–						–					

2. Substances Subject to Notification under PRTR

Table of Substances Subject to PRTR Notification

Unit: kg

Chemical substances	Quantity discharged				Quantity transferred			
	To air		To public water bodies		Sewer		Off-site	
	FY2022	FY2023	FY2022	FY2023	FY2022	FY2023	FY2022	FY2023
acetic acid 2-Methoxyethyl	1	0	0	0	0	0	0	0
2-Aminoethanol	40	40	73	69	0	0	0	0
Hydrogen fluoride and its water-soluble salts	911	564	0	0	0	0	560	0
Boron and its compounds	0	0	0	0	0	0	0	0
Indium and its compounds	0	0	13	0	0	0	750	0
Molybdenum and its compounds	0	0	384	270	0	0	5,201	3,300
Butyl cellosolve	–	280	–	0	–	0	–	890
Diethylene glycol monobutyl ether	–	40	–	*9 8,100	–	4,000	–	0
Tetramethylammonium hydroxide	–	159	–	1,100	–	37,000	–	151,300
N-Methyl-2-pyrrolidone	–	1,760	–	480	–	0	–	13,000

Since the actual quantities discharged into soil and disposed in landfill for the concerned sites were zero, these were not recorded.
*9 There was an error in the reported emissions of Diethylene glycol monobutyl ether (to public water bodies) in fiscal year 2023, so JDI has corrected that figure.

3. Environmental Accounting

Summary of Environmental Conservation Costs in Japan

Units: 1 million yen

Major category	Items	Details	Investment	Expenses
Environmental conservation costs *10 (cost within business area)	Pollution prevention cost	Costs for preventing air pollution, water pollution, soil pollution, noise, foul odors, and more	1.4	1,905
	Global environmental conservation cost	Costs for preventing global warming, conserving energy, preventing the depletion of the ozone layer, and more	7.3	31
	Resource recycling costs	Costs for the efficient utilization of resources, as well as the recycling, treatment and disposal of industrial waste and general waste	0	636
	Total		8.7	2,573

*10 Analysis and measurement costs related to the environment are also included in the costs within business areas.

Summary of Environmental Conservation Effects in Japan

Major categories	Categories	Items	Effect	Units
Environmental conservation effects (physical unit)	Environmental conservation effects related to environmental burdens and waste *11	Emissions of energy-derived CO_2	75	million t-CO_2
		Emissions of waste, etc.	4,985	t
Economic benefits associated with environmental conservation activities	Operating revenue related to environmental burdens and waste	Revenue from the sale of valuables	14	1 million yen

*11 In order to consider the changes in the production output, values were derived using the following formula, which was established by referring to the Environmental Accounting Guideline.
Effects = emissions from the previous fiscal year x (glass substrate area from the fiscal year in question / glass substrate area from the previous fiscal year) - emissions from the fiscal year in question

※Although the Higashiura Engineering Center will cease production at the end of March 2023, we continued to conduct environmental measurements based on pollution prevention agreements in fiscal 2023, and have included these in our environment-related data collection.