

Environmental Data by Murata Plants

In every Murata plant, either in Japan or overseas, the management level for controlling possibly pollutants is always strict enough to meet the currently effective local laws or regulations.

- [1] The data for chemical substances in this report are in principle for those substances subjected to the laws or regulations currently effective in the country or region where the Murata plant in question is situated.
- [2] The items lacking a target level are those being subjected to voluntary control.
- [3] The water quality data are the values measured at the final discharge point.
- [4] The air quality data are the values measured at the exhaust point.
- [5] The data listed below either with plants in Japan or overseas are those acquired in the period of April 1, 2001 to March 31, 2002.
- [6] The fuel consumption values have been obtained by converting the consumptions of heavy oil, kerosene and fuel gas into the equivalent consumption of petroleum. For this purpose, the conversion coefficient for plants in Japan and overseas is the one mentioned in the regular report per Law Concerning the Rational Use of Energy in Japan.
- [7] Either with plants in Japan or overseas, "recycling ratio" refers to a ratio of waste (including salable waste) sold or recycled to the total amount released:
[Recycling ratio=(amount sold + amount recycled) /total amount released]
- [8] Target levels are taken from the strictest values stipulated by laws, regulations and agreements with local government, with plants either in Japan or overseas.
- [9] The *amounts released or transported of substance subjected to PRTR* have been calculated in compliance with the PRTR law in Japan. The results have been rounded off to the order of 0.1 ton.

Murata Manufacturing Co., Ltd. Head Office/Nagaoka Plant

26-10, Tenjin 2-chome, Nagaokakyo-shi, Kyoto 617-8555, Japan
 Electricity consumption: 7,315,668 kWh/year
 Fuel consumption: 57 kℓ/year
 Total waste released: 178 metric tons/year
 (Recycling ratio: 93.7%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.6	7.4-7.7*1
BOD	160	0.5	2.4
Lead	0.1	N.D.	N.D.
Fluorine and its compounds	15*2	0.2	0.7
Nickel	-	0.02	0.03
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Trichloroethylene	0.3	0.002	0.006
Tetrachloroethylene	0.1	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; others, mg/ℓ
 pH: hydrogen ion concentration
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 1: The minimum to maximum pH values.
 2: The target levels for fluorine and its compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, [Target level]: No particular standard value per currently effective laws or regulations.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.3	0.03	0.04
SOx	1	0.02	0.02
NOx	180	67	69

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Murata Manufacturing Co., Ltd. Yokaichi Plant

4-4-1, Higashiokino, Yokaichi-shi, Shiga 527-8558, Japan
 Electricity consumption: 82,102,920 kWh/year
 Fuel consumption: 6,293 kℓ/year
 Total waste released: 2,821 metric tons/year
 (Recycling ratio: 54.1%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-8.5	7.5	6.9-8.0*1
COD	15	4	12
BOD	12	2.4	12
SS	20	0.1	3
n-hexane (mineral oil)	3	0.2	1.7
Phenol	1	N.D.	N.D.
Copper	1	0.015	0.023
Zinc	1	0.17	0.54
Soluble iron	10	0.4	2
Soluble manganese	10	0.07	0.17
Total chromium	0.1	N.D.	N.D.
Hexavalent chromium	0.05	N.D.	N.D.
Number of coliform groups	3000	21	110
Total nitrogen	8	2.8	5.0
Total phosphorus	0.8	0.03	0.11
Lead	0.1	0.001	0.015
Fluorine and its compounds	8	0.4	1
Boron and its compounds	2	0.1	0.3
Ammonia			
Ammonium compounds			
Nitrite compounds and nitrate compounds	730*2	2.20	3.86
Nickel	-	0.06	0.14
Antimony	0.05	N.D.	N.D.
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3.0	N.D.	N.D.
1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Trichloroethylene	0.3	N.D.	0.002
Tetrachloroethylene	0.1	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 1: The minimum to maximum pH values.
 2: The target levels for ammonia, ammonium compounds, nitrite compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.
 [Target level]: No particular standard value per currently effective laws or regulations.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.1	0.01	0.09
SOx	0.63	N.D.	0.02
NOx	130	51	110
Lead	7	0.03	0.03
Lead (at border of site)	0.0015	N.D.	N.D.
Phenol (at border of site)	0.2	N.D.	N.D.
Fluorine (at border of site)	0.02	N.D.	N.D.
Cadmium (at border of site)	0.001	N.D.	N.D.
Antimony (at border of site)	0.005	N.D.	N.D.
Nickel (at border of site)	-	N.D.	N.D.
Hydrogen chloride (at border of site)	0.07	N.D.	N.D.
Chlorine (at border of site)	0.03	N.D.	N.D.
Suspended particulate matter (at border of site)	-	43	79

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm; others, mg/Nm³
 N.D.: not greater than minimum limit of detection (Not Detected)
 Level of pollution was measured at several locations, each location given a unique target level. For safe evaluation, the strictest level is adopted.
 [Target level]: No particular standard value per currently effective laws or regulations.

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred	
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste
Xylene	0.7	0.0	0.0	0.0	0.0	15.5
Silver and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	0.2
Toluene	0.7	0.0	0.0	0.0	0.0	38.3
Lead and its compounds	0.5	0.0	0.0	0.0	0.0	2.1
Nickel compounds	0.0	0.0	0.0	0.0	0.0	4.3
Barium and its water-soluble compounds	0.2	0.0	0.0	0.0	0.0	9.7
Formaldehyde	0.6	0.0	0.0	0.0	0.0	0.0
Manganese and its compounds	0.0	0.0	0.0	0.0	0.0	1.4

Unit: metric tons/year

Environmental Data by Murata Plants

Murata Manufacturing Co., Ltd. Yasu Plant

2288, Oshinohara, Yasu-cho, Yasu-gun, Shiga 520-2393, Japan

Electricity consumption: 15,817,368 kWh/year

Fuel consumption: 15,034 kl/year

Total waste released: 5,855 metric tons/year

(Recycling ratio: 78.4%)

Water quality data:

[Outlet #1 and #2]

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-8.5	7.5	7.1-7.7*1
SS	25	1	10
COD	20	4.9	18
BOD	20	3.2	19
n-hexane (mineral oil)	3	N.D.	N.D.
Phenol	1	N.D.	N.D.
Copper	1	0.005	0.008
Zinc	1	0.1	0.3
Soluble iron	10	0.1	0.1
Soluble manganese	10	0.03	0.04
Total chromium	0.1	N.D.	N.D.
Hexavalent chromium	N.D.	N.D.	N.D.
Number of coliform groups	3000	48	160
Total nitrogen	8	0.4	3.5
Total phosphorus	0.6	0.03	0.12
Cadmium	N.D.	N.D.	N.D.
Cyanide	N.D.	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Arsenic	N.D.	N.D.	N.D.
Fluorine and its compounds	6	0.04	0.2
Boron and its compounds	2	0.03	0.14
Ammonia Ammonium compounds			
Nitrite compounds and nitrate compounds	730 *2	0.31	0.79
Nickel	-	0.002	0.007
Tin	-	N.D.	N.D.
Antimony	0.05	N.D.	N.D.
Dichloromethane	N.D.	N.D.	N.D.
Carbon tetrachloride	N.D.	N.D.	N.D.
1,2-dichloroethane	N.D.	N.D.	N.D.
1,1,1-trichloroethane	N.D.	N.D.	N.D.
1,1,2-trichloroethane	N.D.	N.D.	N.D.
1,1-dichloroethylene	N.D.	N.D.	N.D.
Cis-1,2-dichloroethylene	N.D.	N.D.	N.D.
Trichloroethylene	N.D.	N.D.	N.D.
Tetrachloroethylene	N.D.	N.D.	N.D.
1,3-dichloropropene	N.D.	N.D.	N.D.
Benzene	N.D.	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ

pH: hydrogen ion concentration

COD: Chemical Oxygen Demand

BOD: Biochemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*1: The minimum to maximum pH values.

*2: The target levels for ammonia, ammonium compounds, nitrite compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.

*[Target level-]: No particular standard value per currently effective laws or regulations.

[Outlet #3 and #4]

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-8.5	7.8	6.5-8.3*1
SS	25	5.5	22.0
COD	15	3.8	7.4
BOD	15	1.7	11.2
n-hexane (mineral oil)	3	N.D.	N.D.
Phenol	1	N.D.	N.D.
Copper	1	0.019	0.036
Zinc	1	0.044	0.069
Soluble iron	10	0.6	1.1
Soluble manganese	10	0.175	0.091
Total chromium	0.1	N.D.	N.D.
Hexavalent chromium	N.D.	N.D.	N.D.
Number of coliform groups	3000	210	780
Total nitrogen	8	0.6	7.4
Total phosphorus	0.5	0.10	0.46
Cadmium	N.D.	N.D.	N.D.
Cyanide	N.D.	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Arsenic	N.D.	N.D.	N.D.
Fluorine and its compounds	6	0.1	0.4
Boron and its compounds	2	N.D.	0.06
Ammonia Ammonium compounds			
Nitrite compounds and nitrate compounds	730 *2	0.4	2.38
Nickel	-	0.01	0.07
Tin	-	0.05	0.09
Antimony	0.05	N.D.	N.D.
Dichloromethane	N.D.	N.D.	N.D.
Carbon tetrachloride	N.D.	N.D.	N.D.
1,2-dichloroethane	N.D.	N.D.	N.D.
1,1,1-trichloroethane	N.D.	N.D.	N.D.
1,1,2-trichloroethane	N.D.	N.D.	N.D.
1,1-dichloroethylene	N.D.	N.D.	N.D.
Cis-1,2-dichloroethylene	N.D.	N.D.	N.D.
Trichloroethylene	N.D.	N.D.	N.D.
Tetrachloroethylene	N.D.	N.D.	N.D.
1,3-dichloropropene	N.D.	N.D.	N.D.
Benzene	N.D.	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ

pH: hydrogen ion concentration

COD: Chemical Oxygen Demand

BOD: Biochemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*1: The minimum to maximum pH values.

*2: The target levels for ammonia, ammonium compounds, nitrite compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.

*[Target level-]: No particular standard value per currently effective laws or regulations.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.05	N.D.	N.D.
NOx	70	27	51
Lead	7	N.D.	N.D.
Fluorine compounds	3	N.D.	N.D.
Antimony	3	N.D.	N.D.
Ethyl acetate	-	N.D.	N.D.

Unit: soot and dust, g/Nm³; NOx, ethyl acetate, ppm; lead, fluorine compounds, antimony, mg/Nm³

N.D.: not greater than minimum limit of detection (Not Detected)

[Target level-]: No particular standard value per currently effective laws or regulations.

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Bisphenol A type liquid-epoxy resin	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Silver and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	0.1	0.5
Toluene	0.4	0.0	0.0	0.0	0.0	3.2	0.0
Nickel	0.0	0.0	0.0	0.0	0.0	0.3	0.2
Nickel compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tetrahydroxymethyl anhydrous phthalic acid	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Hydrazine	0.0	0.0	0.0	0.0	0.0	3.2	0.0

Unit: metric tons/year

Murata Manufacturing Co., Ltd. Yokohama Technical Center

18-1, Hakusan 1-chome, Midori-ku Yokohama-shi, Kanagawa 226-0006, Japan
 Electricity consumption: 3,927,774 kWh/year
 Fuel consumption: 643 kℓ/year
 Total waste released: 55 metric tons/year
 (Recycling ratio: 26.3%)

Water quality data:

The management level is strictly enough to meet the target level.
Process wastewater

Item	Target level	Average	Max. value
pH	5.0-9.0	7.5	7.2-7.9*1
SS	-	0.9	4
COD	-	2.6	2.9
BOD	-	0.3	0.6
n-hexane (mineral oil)	5	N.D.	N.D.
Copper	1	0.006	0.012
Zinc	1	0.02	0.04
Soluble iron	3	1.5	2.5
Soluble manganese	1	0.006	0.008
Lead	0.1	N.D.	N.D.
Arsenic	0.1	N.D.	N.D.
Fluorine and its compounds	15*2	0.1	0.2
Boron and its compounds	25*2	N.D.	0.02
Nickel	-	N.D.	N.D.
Tin	-	N.D.	N.D.
Barium	-	0.002	0.013
Palladium	-	N.D.	N.D.
Strontium	-	0.02	0.03
Zirconium	-	N.D.	N.D.
Antimony	-	N.D.	N.D.
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1,1-dichloroethylene	0.2	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Domestic wastewater

Item	Target level	Average	Max. value
pH	5.0-9.0	6.7	5.4-7.7*1
SS	-	68	110
COD	-	87	89
BOD	-	200	200
n-hexane (mineral oil)	-	25	92

Unit: pH, none; others, mg/ℓ

pH: hydrogen ion concentration

COD: Chemical Oxygen Demand

BOD: Biochemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*1: The minimum to maximum pH values.

*2: The target levels for fluorine, fluorine compounds, boron, boron compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.

*[Target level]: No particular standard value per currently effective laws or regulations.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
NOx B-1 boiler	0.130	0.034	0.034
NOx B-2 boiler	0.055	0.027	0.027
NOx chilled/hot water generator	0.046	0.030	0.042
NOx gas engine	0.111	0.051	0.081

Unit: NOx, Nm³/h

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Murata Manufacturing Co., Ltd. Tokyo Branch

29-12, Shibuya 3-chome, Shibuya-ku, Tokyo 150-0002, Japan
 Electricity consumption: 961,512 kWh/year
 Fuel consumption: 68 kℓ/year
 Total waste released: 38 metric tons/year
 (Recycling ratio: 84.1%)

Water quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.05	0.007	0.009
NOx	60	23	26

Unit: soot and dust, g/Nm³; NOx, ppm

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Fukui Murata Manufacturing Co., Ltd.

1,13-go, Okamoto-cho, Takefu-shi, Fukui 915-8601, Japan
 Electricity consumption: 124,452,000 kWh/year
 Fuel consumption: 8,832 kℓ/year
 Total waste released: 4,751 metric tons/year
 (Recycling ratio: 52.6%)

【Takefu Plant】

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.3	6.4-8.0*1
SS	45	3.4	24
BOD	30	2.9	18
n-hexane (mineral oil)	5	0.1	0.7
Phenol	5	N.D.	N.D.
Copper	3	0.01	0.03
Zinc	5	0.023	0.035
Soluble iron	10	1.6	4.9
Soluble manganese	10	0.8	2.2
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.05	N.D.	N.D.
Cadmium	0.1	N.D.	N.D.
Cyanide	1	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Mercury	0.005	N.D.	N.D.
Arsenic	0.1	0.001	0.004
Fluorine and its compounds	15	N.D.	N.D.
Boron and its compounds	10	0.04	0.09
Ammonia			
Ammonium compounds			
Nitrite compounds and nitrate compounds	730*2	1.5	3.7
Nickel	5	0.003	0.017
Tin	5	N.D.	0.03
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Cis-1,2-dichloroethylene	0.4	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
1,3-dichloropropene	0.02	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; others, mg/ℓ

pH: hydrogen ion concentration

BOD: Biochemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*1: The minimum to maximum pH values.

*2: The target levels for ammonia, ammonium compounds, nitrite compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.1	N.D.	N.D.
NOx	150	55	86

Unit: soot and dust, g/Nm³; NOx, ppm

N.D.: not greater than minimum limit of detection (Not Detected)

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Silver and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	0.1	0.8
Toluene	3.2	0.0	0.0	0.0	0.0	0.2	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	12.6	0.0
Nickel	0.0	0.0	0.0	0.0	0.0	9.8	0.0
Nickel compounds	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Barium and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	49.8	0.0
Bis-2-ethylhexyl phthalate	0.0	0.0	0.0	0.0	0.0	4.4	0.0

Unit: metric tons/year

Environmental Data by Murata Plants

Izumo Murata Manufacturing Co., Ltd.

2308, Kaminaoe, Hikawa-cho, Hikawa-gun, Shimane 699-0696, Japan
 Electricity consumption: 122,844,798 kWh/year
 Fuel consumption: 4,259 kℓ/year
 Total waste released: 7,364 metric tons/year
 (Recycling ratio: 23.8%)

【Miyazaki Plant】

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.0	6.5-7.4* ¹
SS	45	3.2	13
BOD	30	3	9
n-hexane (mineral oil)	5	N.D.	N.D.
Phenol	5	N.D.	N.D.
Copper	3	0.011	0.059
Zinc	5	0.07	0.12
Soluble iron	3	0.3	0.4
Soluble manganese	10	0.034	0.045
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.05	N.D.	N.D.
Cadmium	0.1	N.D.	N.D.
Cyanide	1	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Mercury	0.005	N.D.	N.D.
Arsenic	0.1	N.D.	N.D.
Fluorine and its compounds	15	N.D.	N.D.
Boron and its compounds	10	N.D.	N.D.
Ammonia			
Ammonium compounds	730* ²	0.7	1.2
Nitrite compounds and nitrate compounds			
Nickel	5	0.021	0.089
Tin	5	N.D.	N.D.
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Cis-1,2-dichloroethylene	0.4	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
1,3-dichloropropene	0.02	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; others, mg/ℓ

pH: hydrogen ion concentration

BOD: Biochemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*1: The minimum to maximum pH values.

*2: The target levels for ammonia, ammonium compounds, nitrite compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.1	N.D.	N.D.
NOx	150	68	80

Unit: soot and dust, g/Nm³; NOx, ppm

N.D.: not greater than minimum limit of detection (Not Detected)

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

【Shirayama Plant】

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.4	6.9-7.7* ¹
SS	45	1	9
BOD	30	4	8
n-hexane (mineral oil)	5	0.1	1.1
Phenol	5	N.D.	N.D.
Copper	3	0.013	0.013
Zinc	5	0.006	0.006
Soluble iron	3	0.4	0.4
Soluble manganese	10	0.01	0.01
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.05	N.D.	N.D.
Cadmium	0.1	N.D.	N.D.
Cyanide	1	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Mercury	0.005	N.D.	N.D.
Arsenic	0.1	N.D.	N.D.
Fluorine and its compounds	15	N.D.	N.D.
Boron and its compounds	10	0.08	0.08
Ammonia			
Ammonium compounds	730* ²	1.8	1.8
Nitrite compounds and nitrate compounds			
Nickel	5	0.009	0.017
Tin	5	N.D.	N.D.
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Cis-1,2-dichloroethylene	0.4	N.D.	N.D.
Trichloroethylene	0.3	N.D.	0.004
Tetrachloroethylene	0.1	N.D.	N.D.
1,3-dichloropropene	0.02	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; others, mg/ℓ

pH: hydrogen ion concentration

BOD: Biochemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*1: The minimum to maximum pH values.

*2: The target levels for ammonia, ammonium compounds, nitrite compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.

Air quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-8.5	7.3	7.0-7.5* ¹
SS	70	3.3	7
COD	20	3	4
COD (total pollutant load control)	114.4	11.5	14.3
BOD	20	1	3
n-hexane (mineral oil)	5	N.D.	N.D.
Copper	3	0.006	0.018
Number of coliform groups	3000	N.D.	N.D.
Total nitrogen	15	2.8	3.9
Total nitrogen (total pollutant load control)	84.3	10.3	16.7
Total phosphorus	3	0.37	0.99
Total phosphorus (total pollutant load control)	16.9	1.43	4.65
Cadmium	0.1	N.D.	N.D.
Cyanide	0.8	N.D.	N.D.
Lead	0.1	N.D.	0.04
Fluorine and its compounds	15* ²	N.D.	0.2
Boron and its compounds	25* ²	0.02	0.08
Ammonia			
Ammonium compounds	730* ²	1.8	3.7
Nitrite compounds and nitrate compounds			
Nickel	8	0.032	0.059
Tin	8	N.D.	N.D.
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc

Total pollutant load control about COD, total nitrogen and total phosphorus: kg/day; others, mg/ℓ

pH: hydrogen ion concentration

COD: Chemical Oxygen Demand

BOD: Biochemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*1: The minimum to maximum pH values.

*2: The target levels for fluorine, fluorine compounds, boron, boron compounds, ammonia, and ammonium compounds, nitrite compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.1	N.D.	N.D.
SOx	10	N.D.	N.D.
NOx	150	55	96

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm

N.D.: not greater than minimum limit of detection (Not Detected)

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Surface water	Soil	Landfill	Sewage	Waste	Recycling
Toluene	5.9	0.0	0.0	0.0	0.0	138.4	358.9
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Nickel	0.0	0.0	0.0	0.0	0.0	2.2	0.0
Nickel compounds	0.0	0.0	0.0	0.0	0.0	1.5	0.1
Barium and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	231.2	50.0
Di-n-butyl phthalate	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Bis-2-ethylhexyl phthalate	0.0	0.0	0.0	0.0	0.0	5.5	0.0

Unit: metric tons/year

Kanazawa Murata Manufacturing Co., Ltd.

Chi-18, Sodanimachi, Tsurugi-machi, Ishikawagun, Ishikawa 920-2101, Japan
 Electricity consumption: 44,898,322 kWh/year
 Fuel consumption: 3,302 kℓ/year
 Total waste released: 785 metric tons/year
 (Recycling ratio: 81.7%)

【Kanazawa Plant】

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-8.5	7.7	7.4-7.8*1
SS	70	1	6
BOD	20	4	11
n-hexane (mineral oil)	5	N.D.	N.D.
Phenol	5	N.D.	N.D.
Copper	3	N.D.	0.04
Zinc	5	0.1	1.0
Soluble iron	10	0.01	0.08
Soluble manganese	10	0.01	0.07
Total chromium	1.6	N.D.	N.D.
Hexavalent chromium	0.5	N.D.	N.D.
Number of coliform groups	3000	N.D.	2
Cadmium	0.1	N.D.	N.D.
Cyanide	0.8	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Arsenic	0.1	N.D.	N.D.
Mercury	0.005	N.D.	N.D.
Fluorine and its compounds	12	0.1	0.5
Boron and its compounds	25*2	0.2	0.3
Ammonia			
Ammonium compounds	730*2	2.6	3.8
Nitrite compounds and nitrate compounds			
Nickel	-	0.04	0.12
Antimony	-	0.004	0.009
Dichloromethane	0.2	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
 pH: hydrogen ion concentration
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.
 *2: The target levels for boron, boron compounds, ammonia, ammonium compounds, nitrite compounds, and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.
 [Target level]: No particular standard value per currently effective laws or regulations.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.10	N.D.	0.004
SOx	6.05	N.D.	N.D.
NOx	150	53	110
Hydrogen chloride	60	0.04	0.08
Fluorine compounds	10	N.D.	N.D.

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm;
 hydrogen chloride, fluorine compounds, mg/Nm³
 N.D.: not greater than minimum limit of detection (Not Detected)

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Toyama Murata Manufacturing Co., Ltd.

345, Ueno, Toyama-shi, Toyama 939-8195, Japan
 Electricity consumption: 36,812,340 kWh/year
 Fuel consumption: 128 kℓ/year
 Total waste released: 645 metric tons/year
 (Recycling ratio: 67.3%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-8.3	7.6	7.5-7.7*1
SS	50	N.D.	3
BOD	20	1.4	4.7
n-hexane (mineral oil)	3	N.D.	N.D.
Copper	3	0.023	0.042
Number of coliform groups	3000	6	18
Lead	0.1	N.D.	0.06
Fluorine and its compounds	15*2	N.D.	N.D.
Boron and its compounds	25*2	0.02	0.02
Ammonia			
Ammonium compounds			
Nitrile compounds and nitrate compounds	730*2	1.5	1.5
Nickel	-	N.D.	0.007
Tin	-	N.D.	N.D.
1,1,1-trichloroethane	1	N.D.	N.D.
Trichloroethylene	0.1	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
 pH: hydrogen ion concentration
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.
 *2: The target levels for fluorine, fluorine compounds, boron, boron compounds, ammonia, and ammonium compounds, nitrile compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.
 [Target level]: No particular standard value per currently effective laws or regulations.

Air quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Toluene	4.0	0.0	0.0	0.0	0.0	15.9	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	2.5	37.4

Unit: metric tons/year

Environmental Data by Murata Plants

Komatsu Murata Manufacturing Co., Ltd.

93, Hikari-machi, Komatsu-shi, Ishikawa 923-8626, Japan
 Electricity consumption: 17,314,698 kWh/year
 Fuel consumption: 293 kℓ/year
 Total waste released: 339 metric tons/year
 (Recycling ratio: 86.4%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.6	7.3-7.8*1
SS	70	4.3	14
COD	30	3.5	5.8
BOD	30	1.3	4.1
Copper	3	0.116	0.34
Zinc	5	0.09	0.17
Soluble iron	10	0.029	0.058
n-hexane (mineral oil)	5	N.D.	N.D.
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.5	N.D.	N.D.
Number of coliform groups	3000	110	220
Cadmium	0.1	N.D.	N.D.
Lead	0.1	0.010	0.031
1,1,1-trichloroethane	0.3	N.D.	N.D.
Trichloroethylene	3	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.

Air quality data:

No particular standard value per currently effective laws or regulations.
 Despite this, monitoring is performed according to a voluntary control standard.

Item	Target level	Average	Max. value
Soot and dust	-	N.D.	N.D.
SOx	-	0.06	0.11
NOx	-	61	73

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
 N.D.: not greater than minimum limit of detection (Not Detected)
 [Target level]: No particular standard value per currently effective laws or regulations.

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Hakui Murata Manufacturing Co., Ltd.

52, Yanagibashi, Yanagibashi-machi, Hakuishi, Ishikawa 925-8555, Japan
 Electricity consumption: 8,699,592 kWh/year
 Fuel consumption: 180 kℓ/year
 Total waste released: 389 metric tons/year
 (Recycling ratio: 91.3%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.9	7.7-8.1*1
SS	40	5.2	14
COD	90	5.1	6.5
BOD	40	3.2	13.0
n-hexane (mineral oil)	5	N.D.	N.D.
Copper	3	0.006	0.013
Soluble iron	10	1.9	4.5
Total chromium	2	N.D.	N.D.
Number of coliform groups	3000	12	41
Lead	0.1	0.03	0.06
1,1,1-trichloroethane	3	N.D.	N.D.
Trichloroethylene	0.3	0.001	0.003
Tetrachloroethylene	0.1	N.D.	0.001

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.3	0.04	0.04
SOx	4.85	0.21	0.21
NOx	180	84	84

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Toluene	0.9	0.0	0.0	0.0	0.0	2.8	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	27.5

Unit: metric tons/year

【Togi Plant】

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	8.1	7.7-8.4*1
SS	60	13	15
COD	90	10	13
BOD	60	8	12
n-hexane (mineral oil)	5	0.7	0.8
Number of coliform groups	3000	710	1200
1,1,1-trichloroethane	3	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.3	N.D.	N.D.
SOx	6.1	0.2	0.2
NOx	180	92	95

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
 N.D.: not greater than minimum limit of detection (Not Detected)

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Okayama Murata Manufacturing Co., Ltd.

77, Fukumoto, Oku-cho, Oku-gun, Okayama 701-4241, Japan
 Electricity consumption: 28,463,304 kWh/year
 Fuel consumption: 2,942 kℓ/year
 Total waste released: 728 metric tons/year
 (Recycling ratio: 33.3%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-8.5	7.7	7.38.0*1
SS	30	N.D.	N.D.
COD	10	2.9	4.5
BOD	10	0.7	1.3
n-hexane (mineral oil)	2	0.1	0.8
Total chromium	2	0.001	0.015
Hexavalent chromium	0.05	N.D.	N.D.
Total nitrogen	60	4.0	7.1
Total phosphorus	8	0.29	0.67
Lead	0.1	0.01	0.05
Ammonia			
Ammonium compounds	730*2	4.7	6.6
Nitrite compounds and nitrate compounds			
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.
 *2: The target levels for ammonia, ammonium compounds, nitrite compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.05	0.001	0.001
SOx*1	4.44	0.023	0.023
NOx	100	32	39

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
 *1: Level of pollution was measured at several locations, each location given a unique target level. For safe evaluation, the strictest level is adopted.

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Toluene	0.2	0.0	0.0	0.0	0.0	0.0	26.3
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	2.1	0.0
Nickel compounds	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Barium and its compounds	0.0	0.0	0.0	0.0	0.0	3.7	0.0

*Unit: metric tons/year

Sabae Murata Manufacturing Co., Ltd.

2-82, 1-chome, Miyuki-cho, Sabae-shi, Fukui 916-0015, Japan
 Electricity consumption: 10,650,684 kWh/year
 Fuel consumption: 393 kℓ/year
 Total waste released: 715 metric tons/year
 (Recycling ratio: 71.4%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.7-8.7	7.1	5.8-7.5*1
SS	300	7.8	15
BOD	300	14	25
n-hexane (mineral oil)	5	0.4	1.5
Copper	3	0.30	0.92
Zinc	5	0.021	0.037
Soluble iron	10	0.04	0.13
Soluble manganese	10	N.D.	0.003
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.5	N.D.	N.D.
Cadmium	0.1	N.D.	0.0013
Cyanide	1	N.D.	N.D.
Lead	0.1	0.02	0.09
Mercury	0.005	N.D.	N.D.
Iodine	220	N.D.	0.5
Fluorine and its compounds	8	1.1	3.5
Nickel	5	0.2	0.5
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,2-trichloroethane	0.05	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; others, mg/ℓ
 pH: hydrogen ion concentration
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.3	0.01	0.01
SOx	2.1	0.09	0.14
NOx	260	76	98

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Nickel compounds	0.0	0.0	0.0	0.0	0.0	0.5	0.0

*Unit: metric tons/year

Kanazu Murata Manufacturing Co., Ltd.

10-28, Hananomori 2-chome, Kanazu-cho, Sakai-gun, Fukui 919-0633, Japan
 Electricity consumption: 9,718,116 kWh/year
 Fuel consumption: 54 kℓ/year
 Total waste released: 363 metric tons/year
 (Recycling ratio: 70.8%)

【Kanazu Plant】

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.7	7.0-8.1*1
SS	120	0.5	4.0
COD	160	1.8	3.2
BOD	120	0.7	2.1
n-hexane (mineral oil)	5	N.D.	N.D.
Total chromium	2	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.3	N.D.	N.D.
SOx	4.3	0.064	0.081
NOx	260	79	82

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
 N.D.: not greater than minimum limit of detection (Not Detected)

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

【Natsume Plant】

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.8	7.5-8.1*1
SS	200	3.3	6.0
COD	160	1.8	2.4
BOD	160	N.D.	N.D.
n-hexane (mineral oil)	5	N.D.	N.D.
Cadmium	0.1	N.D.	N.D.

Unit: pH, none; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.

Air quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Environmental Data by Murata Plants

Himi Murata Manufacturing Co., Ltd.

12-5, Oura, Himi-shi, Toyama 935-0103, Japan
 Electricity consumption: 7,597,188 kWh/year
 Fuel consumption: 53 *kℓ*/year
 Total waste released: 339 metric tons/year
 (Recycling ratio: 60.1%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	6.8	6.5-7.1*1
SS	120	1	3
BOD	25	3.5	5.8
n-hexane (mineral oil)	5	0.4	1.3
Copper	1	0.03	0.04
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.5	N.D.	N.D.
Number of coliform groups	3000	N.D.	N.D.
Cadmium	0.1	N.D.	N.D.
Lead	0.1	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
 pH: hydrogen ion concentration
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	-	0.012	0.012
SOx	13.7	0.017	0.017
NOx	-	76	77

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
 [Target level]: No particular standard value per currently

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Bisphenol A type liquid-epoxy resin	0.8	0.0	0.0	0.0	0.0	0.2	0.0
Toluene	5.3	0.0	0.0	0.0	0.0	21.1	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	11.4

Unit: metric tons/year

Iwami Murata Manufacturing Co., Ltd.

Ohda Yi 795-1, Ohda-cho, Ohdashi, Shimane 694-0064, Japan
 Electricity consumption: 6,484,002 kWh/year
 Fuel consumption: 210 *kℓ*/year
 Total waste released: 261 metric tons/year

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.9	7.8-8.1*1
SS	200	2.7	5.0
COD	160	7.8	9.9
BOD	160	3.6	5.8
n-hexane (mineral oil)	5	1.7	2.5
Copper	3	0.003	0.004
Zinc	5	0.04	0.05
Soluble iron	10	0.8	0.9
Soluble manganese	10	0.10	0.12
Number of coliform groups	3000	56	150
Lead	0.1	N.D.	N.D.
Nickel	-	N.D.	N.D.
Tin	-	N.D.	N.D.
Barium	-	0.09	0.22
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	3	N.D.	N.D.
1,1,1-trichloroethane	0.06	N.D.	N.D.
1,1,2-trichloroethane	0.2	N.D.	N.D.
1,1-dichloroethylene	0.3	0.008	0.035
Trichloroethylene	0.1	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 1: The minimum to maximum pH values.
 [Target level]: No particular standard value per currently effective laws or regulations.

Air quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Amount released or transported of substances to be subjected to PRTR:

Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Wakura Murata Manufacturing Co., Ltd.

1, U, Ishizaki-machi, Nanao-shi, Ishikawa 926-0173, Japan
 Electricity consumption: 4,497,384 kWh/year
 Fuel consumption: 126 *kℓ*/year
 Total waste released: 277 metric tons/year
 (Recycling ratio: 54.6%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.6	7.0-8.1*1
SS	90	7	30
COD	40	8	27
BOD	40	4	19
n-hexane (mineral oil)	5	0.3	1.4
Copper	3	0.010	0.023
Number of coliform groups	3000	71	520
Total nitrogen	120	7	29
Total phosphorus	16	0.6	2.6
Lead	0.1	N.D.	0.01

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.3	N.D.	N.D.
SOx	1.5	N.D.	N.D.
NOx	180	72	77

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
 N.D.: not greater than minimum limit of detection (Not Detected)

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Bisphenol A type liquid-epoxy resin	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	0.1	5.9

Unit: metric tons/year

Anamizu Electronics Industries, Ltd.

Chi-53, Ohmachi, Anamizu-machi, Fugeshi-gun, Ishikawa 927-0026, Japan
 Electricity consumption: 2,182,590 kWh/year
 Fuel consumption: 27 kℓ/year
 Total waste released: 101 metric tons/year
 (Recycling ratio: 48.2%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.4	6.9-7.6* ¹
SS	200	18	36
COD	80	28	47
n-hexane (mineral oil)	5	0.7	1.3
Zinc	5	0.05	0.09
Soluble iron	10	0.19	0.52
Lead	0.1	0.01	0.04
Fluorine and its compounds	15* ²	0.1	0.4
Boron and its compounds	25* ²	0.01	0.02
Ammonia			
Ammonium compounds	730* ²	9.5	15.8
Nitrite compounds and nitrate compounds			
Nickel	-	0.01	0.13

Unit: pH, none; others, mg/ℓ

pH: hydrogen ion concentration

COD: Chemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*¹: The minimum to maximum pH values.

*²: The target levels for fluorine, fluorine compounds, boron, boron compounds, ammonia, and ammonium compounds, nitrite compounds and nitrate compounds are the temporary requirements for the electronic components manufacturing industry in Japan, that were stipulated by the associated law and will remain effective to June 30, 2004.

*[Target level]: No particular standard value per currently effective laws or regulations.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.3	N.D.	N.D.
SOx	1.1	0.009	0.018
NOx	180	74	75

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm

N.D.: not greater than minimum limit of detection (Not Detected)

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	22.7

Unit: metric tons/year

Asuwa Electronics Industries, Ltd.

1321, Emorinaka 2-chome, Fukui-shi, Fukui 918-8025, Japan
 Electricity consumption: 784,032 kWh/year
 Fuel consumption: none
 Total waste released: 13 metric tons/year
 (Recycling ratio: 32.8%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.8	7.5-8.1* ¹
SS	200	10	13
BOD	160	9	17
n-hexane (mineral oil)	5	N.D.	N.D.
Number of coliform groups	3000	3	6
Cadmium	0.1	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Dichloromethane	0.2	N.D.	N.D.
Carbon tetrachloride	0.02	N.D.	N.D.
1,2-dichloroethane	0.04	N.D.	N.D.
1,1,1-trichloroethane	3	N.D.	N.D.
1,1,2-trichloroethane	0.06	N.D.	N.D.
1,1-dichloroethylene	0.2	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
Benzene	0.1	N.D.	N.D.

Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ

pH: hydrogen ion concentration

BOD: Biochemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*¹: The minimum to maximum pH values.

Air quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Tome Murata Manufacturing Co., Ltd.

11-1, Nakae 4-chome, Sanuma, Hasama-cho, Tome-gun, Miyagi 987-0511, Japan
 Electricity consumption: 4,577,382 kWh/year
 Fuel consumption: 154 kℓ/year
 Total waste released: 38 metric tons/year
 (Recycling ratio: 59.7%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.0-9.0	5.9	5.3-6.3* ¹
SS	600	72	91
COD	-	84	170
BOD	600	194	400
n-hexane (animal and plant)	30	7	13
Copper	3	0.014	0.021
Zinc	5	0.048	0.072
Fluorine and its compounds	8	N.D.	N.D.
Boron and its compounds	10	0.04	0.04
Contents ammonia nitrogen, nitrile nitrogen and nitrate nitrogen	380	N.D.	N.D.

Unit: pH, none; others, mg/ℓ

pH: hydrogen ion concentration

COD: Chemical Oxygen Demand

BOD: Biochemical Oxygen Demand

N.D.: not greater than minimum limit of detection (Not Detected)

*¹: The minimum to maximum pH values.

*[Target level]: No particular standard value per currently effective laws or regulations.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.3	0.008	0.009
SOx	2.96	0.039	0.054
NOx	180	71	73

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm

Level of pollution was measured at several locations, each location given a unique target level. For safe evaluation, the strictest level is adopted.

Amount released or transported of substances to be subjected to PRTR:
 Any substances to be subjected to PRTR is used in an amount that necessitates registration.

Environmental Data by Murata Plants

Azumi Murata Manufacturing Co., Ltd.

1020, Takibe, Toyoshina-machi, Minamiazumi-gun, Nagano 399-8294, Japan
 Electricity consumption: 8,907,240 kWh/year
 Fuel consumption: 226 kℓ/year
 Total waste released: 262 metric tons/year
 (Recycling ratio: 33.2%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.8-8.6	7.3	6.9-7.7*1
SS	50	4	5
COD	30	6.3	9.3
BOD	60	4.5	7.0
n-hexane (mineral oil)	5	0.4	0.9
Copper	3	0.004	0.013
Zinc	5	0.09	0.17
Soluble iron	10	0.9	1.7
Lead	0.005	N.D.	N.D.

Unit: pH, none; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 N.D.: not greater than minimum limit of detection (Not Detected)
 *1: The minimum to maximum pH values.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Soot and dust	0.1	0.0007	0.0031
SOx	6.3	0.015	0.025
NOx	150	82	96

Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm

Amount released or transported of substances to be subjected to PRTR:

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Public waters	Soil	Landfill	Sewage	Waste	Recycling
Nickel compounds	0.0	0.0	0.0	0.0	0.0	5.4	0.1

Unit: metric tons/year

Murata Electronics North America, Inc. State College Operations

1900 W. College Avenue
 State College, PA 16801-2799 USA
 Electricity consumption: 28,761,168 kWh/year
 Fuel consumption: 594 kℓ/year
 Total waste released: 628 metric tons/year
 (Recycling ratio: 27.5%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
BOD	-	22	42
Zinc	1.48	0.008	0.013
Total chromium	1.71	N.D.	N.D.
Hexavalent chromium	1.5	N.D.	N.D.
Copper	2.07	N.D.	N.D.
Cadmium	0.25	N.D.	N.D.
Lead	0.43	N.D.	N.D.
Mercury	0.0002	N.D.	N.D.
Silver	0.24	N.D.	N.D.
Thallium	0.19	N.D.	N.D.
Total cyanide	0.65	N.D.	N.D.
Chloroform	0.08	N.D.	N.D.
Methylene chloride	1	N.D.	N.D.
Toluene	0.5	0.001	0.004
Barium	-	0.9	4.5
DBP	-	0.4	1.4
Nickel	3.1	0.01	0.09
Tin	-	1	8
Xylene	2.1	N.D.	N.D.
1,1,1-trichloroethane	1.5	N.D.	N.D.
g-BHC	0.003	N.D.	N.D.
DOP	-	0.04	0.20

Unit: mg/ℓ
 BOD: Biochemical Oxygen Demand
 DBP: di-n-butyl phthalate
 g-BHC: g-benzenehexachloride (lindane)
 DOP: Bis (2-Ethylhexy) phthalate
 N.D.: not greater than minimum limit of detection (Not Detected)
 [Target level]: No particular standard value per currently effective laws or regulations.

Air quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Murata Amazônia Indústria E Comércio Ltda. Manaus Operation

Avenida Buriti 7040, Distrito Industrial
 CEP:69075-000-Manaus AM Brazil
 Electricity consumption: 541,854 kWh/year
 Fuel consumption: none
 Total waste released: 16 metric tons/year
 (Recycling ratio: 13.5%)

Water quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Air quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Murata Elektronik GmbH

Pestalozzistrabe 11, 91572 Bechhofen, Germany
Electricity consumption: 1,749,913 kWh/year
Fuel consumption: 77 kℓ/year
Total waste released: 57 metric tons/year
(Recycling ratio: 46.1%)

Water quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Air quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Murata Manufacturing (UK) Limited

Thornbury Road, Estover Plymouth, Devon PL6 7PP, United Kingdom
Electricity consumption: 1,385,998 kWh/year
Fuel consumption: 74 kℓ/year
Total waste released: 77 metric tons/year
(Recycling ratio: 75.9%)

Water quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Air quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose

Beijing Murata Electronics Co., Ltd.

No. 11 Tianzhu Road, Tianzhu Airport Industry Zone, Shunyi, Beijing 101312, China
Electricity consumption: 5,029,200 kWh/year
Fuel consumption: none
Total waste released: 70 metric tons/year
(Recycling ratio: 60.0%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-8.5	8.0	7.9-8.0*1
SS	50	N.D.	N.D.
COD	60	51	55
Nickel	0.5	0.01	0.01

Unit: pH, none; others, mg/ℓ
pH: hydrogen ion concentration
COD: Chemical Oxygen Demand
N.D.: not greater than minimum limit of detection (Not Detected)
*1: The minimum to maximum pH values.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Organic matters belonging to hydrocarbon groups other than methanes	120	0.09	0.11

Unit: mg/Nm³

Environmental Data by Murata Plants

Wuxi Murata Electronics Co., Ltd.

Lot 123-135, Xingchuang 1st Road, Wuxi-Singapore Industrial Park, Wuxi, Jiangsu 214028, China
 Electricity consumption: 3,812,040 kWh/year
 Fuel consumption: 62 *kℓ*/year
 Total waste released: 105 metric tons/year
 (Recycling ratio: 70.5%)

Water quality data:

No facility or equipment subjected to a relevant law or regulation is present, and no measurement is performed for this purpose.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Dust	40	29	29
NO _x	200	139	139
SO _x	200	17	17

Unit: mg/Nm³

Taiwan Murata Electronics Co., Ltd.

Taiwan Murata Electronics Co., Ltd.
 225 Chung-Chin Road, Taichung, Taiwan
 Electricity consumption: 6,640,002 kWh/year
 Fuel consumption: 1.3 *kℓ*/year
 Total waste released: 261 metric tons/year

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-9.0	7.4	7.4
SS	80	18	26
COD	250	58.3	67.3
BOD	80	18.2	27.6
Temperature	35	28.9	32.8
Number of coliform groups	-	370	640
Dissolved Oxygen (DO)	3 min.	5.2	4.2* ¹

Unit: pH, none; number of coliform groups, number/cc; temperature, °C; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 *1: The minimum Dissolved Oxygen (DO) value.
 [Target level]: No particular standard value per currently

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Dust (emission point (1))	500	186	285
Dust (emission point (2))	399	N.D.	N.D.
Lead (emission point (2))	10	N.D.	N.D.

Unit: mg/Nm³
 N.D.: not greater than minimum limit of detection (Not Detected)

Murata Electronics Singapore (Pte.) Ltd.

200 Yishun Avenue 7, Singapore 768927, Singapore
 Electricity consumption: 56,213,440 kWh/year
 Fuel consumption: none
 Total waste released: 1,000 metric tons/year
 (Recycling ratio: 41.3%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	6.0-9.0	7.7	7.3-8.3* ¹
SS	400	27	115
COD	600	146	290
BOD	400	41	95
TDS	3000	2460	3000
Sulfate	1000	665	1220* ²
Fat and oil (hydrocarbon)	60	N.D.	1
Fat and oil (glyceride)	100	4	24
Barium	10	N.D.	0.1
Nickel	10	0.9	2.1
Tin	10	N.D.	0.4

Unit: pH, none; others, mg/ℓ
 pH: hydrogen ion concentration
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 *1: The minimum to maximum pH values.
 *2: The maximum value fluctuated temporarily due to an occasionally large amount of pH adjusting chemical added at the wastewater treatment facility. Except this situation, the sulfate concentration always satisfied the target level.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Ammonia and ammonium compounds	6.0-9.0	7.7	7.3-8.3* ¹
Hydrogen sulfide	400	27	115
Dust	600	146	290
CO	400	41	95
Nitrogen oxide (as NO ₂)	3000	2460	3000
Copper and its compounds	1000	665	1220* ²
	60	N.D.	1

Unit: mg/Nm³
 N.D.: not greater than minimum limit of detection (Not Detected)

Murata Electronics (Thailand), Ltd.

Northern Region Industrial Estate, 63 Moo 4, Tambol
Ban-Klang, Amphur Muang, Lamphun 51000, Thailand
Electricity consumption: 28,415,998 kWh/year
Fuel consumption: none
Total waste released: 1,635 metric tons/year
(Recycling ratio: 28.8%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.5-9.0	7.5	6.98.0*1
SS	200	70	183
COD	750	242	488
BOD	500	123	269
TDS	3000	297	427
TKN	100	39.0	51.8
Phenol	1	0.02	0.04
Copper	2	0.04	0.17
Zinc	5	0.15	0.19
Total iron	10	0.12	0.15
Trivalent chromium	0.75	N.D.	N.D.
Hexavalent chromium	0.25	N.D.	N.D.
Lead	0.2	0.01	0.05
Fluoride	5	0.32	0.35
Sulfide	1	0.06	0.28
Cadmium	0.03	N.D.	N.D.
Selenium	0.02	N.D.	N.D.
Barium	1	N.D.	N.D.
Nickel	1	N.D.	N.D.
Formaldehyde	1	0.04	0.06
Chloride	2000	65	80
Free chlorine	1	N.D.	N.D.
Oils and grease	10	0.3	1.4
Surfactants	30	0.07	0.08
Odor	Not perceived	Satisfactory	-
Color	No color	Satisfactory	-
Temperature	45	Satisfactory	-

Unit: pH, none; temperature, °C; others, mg/ℓ
pH: hydrogen ion concentration
COD: Chemical Oxygen Demand
BOD: Biochemical Oxygen Demand
TDS: Total Dissolved Nitrogen
TKN: Total Kjeldahl Nitrogen
N.D.: not greater than minimum limit of detection (Not Detected)
*1: The minimum to maximum pH values.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Dust	400	44	324
Antimony	20	0.05	0.09
Arsenic	20	N.D.	N.D.
Lead	30	0.1	0.4
Chlorine	30	0.002	0.002
Hydrogen chloride	200	8	8
Mercury	3	N.D.	N.D.
Carbon monoxide	1,000	47	465
Sulfuric acid	100	18	35
Hydrogen sulfide	140	N.D.	N.D.
Sulfur dioxide	1,300	5	20
Nitrogen dioxide	470	7	37
Xylene	870	2	3

Unit: mg/Nm³
N.D.: not greater than minimum limit of detection (Not Detected)

Murata Electronics (Malaysia) Sdn. Bhd.

Plot 15, Bemban Industrial Park, Jalan Bemban, 31000
Batu Gajah, Perak, Malaysia
Electricity consumption: 5,513,542 kWh/year
Fuel consumption: 6 kℓ/year
Total waste released: 289 metric tons/year
(Recycling ratio: 80.1%)

Water quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
pH	5.5-9.0	7.0	6.6-7.7*1
SS	100	28	52
COD	100	56	100
BOD	50	23	42
Oils and grease	10	N.D.	N.D.

Unit: pH, none; others, mg/ℓ
pH: hydrogen ion concentration
COD: Chemical Oxygen Demand
BOD: Biochemical Oxygen Demand
N.D.: not greater than minimum limit of detection (Not Detected)
*1: The minimum to maximum pH values.

Air quality data:

The management level is strictly enough to meet the target level.

Item	Target level	Average	Max. value
Lead	25	N.D.	N.D.
SPM	400	N.D.	N.D.

Unit: mg/Nm³
SPM: Suspended Particulate Matter
N.D.: not greater than minimum limit of detection (Not Detected)