

Environmental Data by Murata Plants

In every Murata plant, either domestic or overseas, we maintain the control level satisfied by currently effective ordinances or agreements that are stricter than 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] Unless otherwise specified, the data listed below either with plants in Japan or overseas are those acquired in the period of April 1, 2002 to March 31, 2003.
- [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] "Recycling ratio" refers to a ratio of waste (including salable waste) sold or recycled to the total amount released (other than a waste that appears not to be coped with by the efforts of Murata). (See page 23.)
- [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: 7,266,812 kWh/year
 Fuel consumption: 60 kℓ/year
 Total waste released: 201 t/year
 (Annual mean recycling ratio: 98.3%)

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	7.6	6.8-7.9*1
BOD	160	0.6	4.4
Lead	0.1	N.D.	0.02
Fluorine and its compounds	15*2	0.2	3.4
Nickel	2	N.D.	0.042
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.	0.003
1,1-dichloroethylene	0.2	N.D.	N.D.
Trichloroethylene	0.3	N.D.	0.003
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 determination (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, 2004.

Air quality data:

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

Item	Target level	Average	Max. value
Soot and dust	0.3	N.D.	0.04
SOx	1	0.03	0.03
NOx	180	74	74

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides

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: 91,718,670 kWh/year
 Fuel consumption: 6,954 kℓ/year
 Total waste released: 3,032 t/year
 (Annual mean recycling ratio: 53.1%)

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	7.4	7.0-8.2*1
COD	15	3.2	7.5
BOD	15	2.1	5.4
SS	20	0.5	4.0
n-hexane (mineral oils)	3	0.2	1.0
Phenol	1.0	N.D.	N.D.
Copper	1	0.017	0.026
Zinc	1	0.175	0.45
Soluble iron	10	0.3	0.5
Soluble manganese	10	0.09	0.18
Total chromium	0.1	N.D.	N.D.
Number of coliform groups	3000	29	140
Total nitrogen	8	2.6	3.6
Total phosphorus	0.8	0.03	0.06
Lead	0.1	0.003	0.02
Fluorine and its compounds	8	0.3	0.9
Boron and its compounds	2	0.10	0.14
Ammonia			
Ammonium compounds	730*2	2.6	3.6
Nitrite compounds and nitrate compounds			
Nickel	—	0.040	0.062
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	0.001	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
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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	0.005	0.04
SOx	0.63	N.D.	N.D.
NOx	130	53	120
Lead	7	0.03	0.1
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)	—	31	51

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm; lead, mg/Nm³; others, mg/Nm³
- SOx: Sulfur oxides
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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 Recycling
Xylene	0.8	0.0	0.0	0.0	0.0	14.9
Silver and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	0.3
Toluene	0.8	0.0	0.0	0.0	0.0	0.1
Lead and its compounds	0.1	0.1	0.0	0.0	0.0	3.3
Nickel compounds	0.0	0.0	0.0	0.0	0.0	2.5
Barium and its water-soluble compounds	0.0	0.1	0.0	0.0	0.0	7.5
Formaldehyde	0.5	0.0	0.0	0.0	0.0	0.0
Manganese and its compounds	0.0	0.0	0.0	0.0	0.0	2.3

- Unit: t/year

Murata Manufacturing Co., Ltd. Yasu Plant

2288, Oshinohara, Yasu-cho, Yasu-gun, Shiga 520-2393, Japan
 Electricity consumption: 20,641,881 kWh/year
 Fuel consumption: 15,644 kℓ/year
 Total waste released: 9,319 t/year
 (Annual mean recycling ratio: 90.3%)

**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	7.4	6.9-7.8*1
SS	25	0.7	6
COD	20	4.2	6.8
BOD	20	2.8	8.7
n-hexane (mineral oil)	3	N.D.	N.D.
Phenol	1	N.D.	N.D.
Copper	1	0.006	0.05
Zinc	1	0.04	0.06
Soluble iron	10	0.15	0.25
Soluble manganese	10	0.024	0.077
Total chromium	0.1	N.D.	N.D.
Hexavalent chromium	N.D.	N.D.	N.D.
Number of coliform groups	3000	22	64
Total nitrogen	8	0.4	5.7
Total phosphorus	0.6	N.D.	0.07
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.
Mercury	N.D.	N.D.	N.D.
Fluorine and its compounds	6	N.D.	0.2
Boron and its compounds	2	0.02	0.07
Ammonia Ammonium compounds Nitrite compounds and nitrate compounds	730 *2	0.6	4
Nickel	—	0.004	0.008
Tin	—	N.D.	N.D.
Antimony	0.05	N.D.	N.D.
Thiuram	N.D.	N.D.	N.D.
Simazine	N.D.	N.D.	N.D.
Benthocarb	N.D.	N.D.	N.D.
Selenium	N.D.	N.D.	N.D.
PCB	N.D.	N.D.	N.D.
Organic phosphides	N.D.	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.

[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	7.6	7.2-8.1*1
SS	25	3	10.4
COD	15	3.5	7.9
BOD	15	1.3	4.9
n-hexane (mineral oil)	3	N.D.	N.D.
Phenol	1	N.D.	N.D.
Copper	1	0.008	0.034
Zinc	1	0.035	0.076
Soluble iron	10	0.14	0.46
Soluble manganese	10	0.19	0.37
Total chromium	0.1	N.D.	N.D.
Hexavalent chromium	N.D.	N.D.	N.D.
Number of coliform groups	3000	30	100
Total nitrogen	8	N.D.	1.1
Total phosphorus	0.5	0.05	0.2
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.
Mercury	N.D.	N.D.	N.D.
Fluorine and its compounds	6	N.D.	0.3
Boron and its compounds	2	N.D.	0.02
Ammonia Ammonium compounds Nitrite compounds and nitrate compounds	730 *2	N.D.	1.5
Nickel	—	0.04	0.1
Tin	—	N.D.	N.D.
Antimony	0.05	N.D.	N.D.
Thiuram	N.D.	N.D.	N.D.
Simazine	N.D.	N.D.	N.D.
Benthocarb	N.D.	N.D.	N.D.
Selenium	N.D.	N.D.	N.D.
PCB	N.D.	N.D.	N.D.
Organic phosphides	N.D.	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
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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	0.25	N.D.	N.D.
NOx	70	22	44
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
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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
Xylene	0.0	0.0	0.0	0.0	0.0	0.1	2.8
Silver and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Tetrahydromethyl phthalate anhydride	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Toluene	2.2	0.0	0.0	0.0	0.0	0.0	14.9
Nickel	0.0	0.0	0.0	0.0	0.0	0.3	1.7
Nickel compounds	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Barium and its water-soluble compounds	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	7.3	0.0
Formaldehyde	0.0	0.0	0.0	0.0	0.0	0.1	0.0

• Unit: t/year

- Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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.

Environmental Data by Murata Plants

Murata Manufacturing Co., Ltd. Yokohama Technical Center

18-1, Hakusan 1-chome, Midori-ku Yokohama-shi, Kanagawa 226-0006, Japan
 Electricity consumption: 4,027,200 kWh/year
 Fuel consumption: 593 kℓ/year
 Total waste released: 42 t/year
 (Annual mean recycling ratio: 66.6%)

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	7.2	7.0-7.5*1
SS	—	1.8	8
COD	—	3.6	3.6
BOD	—	N.D.	N.D.
n-hexane (mineral oil)	5	N.D.	N.D.
Copper	1	0.008	0.021
Zinc	1	0.009	0.015
Soluble iron	3	1.2	2.7
Soluble manganese	1	0.005	0.01
Lead	0.1	N.D.	N.D.
Arsenic	0.1	N.D.	N.D.
Fluorine and its compounds	15 *2	N.D.	N.D.
Boron and its compounds	25 *2	0.01	0.03
Nickel	—	N.D.	0.008
Tin	—	N.D.	N.D.
Barium	—	N.D.	0.018
Palladium	—	N.D.	N.D.
Strontium	—	0.022	0.034
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.
1,1,2-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	6.9	6.0-7.2*1
SS	—	51	87
COD	—	32	39
BOD	—	58	100
n-hexane (animal and vegetable oils and fats)	—	17	58

- Unit: pH, none; others, mg/ℓ
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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	0.024	0.024
NOx B-2 boiler	0.055	0.023	0.023
NOx chilled/hot water generator	0.046	0.027	0.031
NOx gas engine	0.111	0.025	0.032

- Unit: NOx, Nm³/h
- NOx: Nitrogen oxides

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: 1,124,364 kWh/year
 Fuel consumption: 191 kℓ/year
 Total waste released: 42 t/year
 (Annual mean recycling ratio: 87.9%)

Water quality data:
 There is no waste water subject to monitoring, 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	0.014	0.02
NOx	45	32	41

- * Unit: soot and dust, g/Nm³; NOx, ppm
- * NOx: Nitrogen oxides

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: 143,700,900 kWh/year
 Fuel consumption: 9,826 kℓ/year
 Total waste released: 5,013 t/year
 (Annual mean recycling ratio: 64.8%)

[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	7.4	7.0-7.7*1
SS	45	1.4	10
BOD	30	3	16.0
n-hexane (mineral oil)	5	N.D.	0.8
Phenol	5	N.D.	N.D.
Copper	3	0.015	0.048
Zinc	5	0.027	0.035
Soluble iron	10	0.022	0.041
Soluble manganese	10	0.016	0.017
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.	0.02
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	1.2	1.7
Nitrile compounds and nitrate compounds			
Nickel	5	0.004	0.021
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.
1,1,2-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
- SS: Suspended Solids
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *1: The minimum to maximum pH values.
- *2: The target levels for ammonia, 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.

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	64	110

- Unit: soot and dust, g/Nm³; NOx, ppm
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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	Severage	Waste	Recycling
Silver and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Toluene	4.4	0.0	0.0	0.0	0.0	0.3	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	15.7	0.0
Nickel	0.0	0.0	0.0	0.0	0.0	13.8	0.0
Nickel compounds	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Barium and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	103	0.0
Bis-2-ethylhexyl phthalate	0.0	0.0	0.0	0.0	0.0	9.2	0.0

- Unit: t/year

Izumo Murata Manufacturing Co., Ltd.

2308, Kaminaoe, Hikawa-cho, Hikawa-gun, Shimane 699-0696, Japan
 Electricity consumption: 133,727,592 kWh/year
 Fuel consumption: 4,315 kℓ/year
 Total waste released: 7,153 t/year
 (Annual mean recycling ratio: 49.7%)

[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	7.1	6.6–7.5*1
SS	45	2.8	18.0
BOD	30	2.6	7.3
n-hexane (mineral oil)	5	N.D.	N.D.
Phenol	5	N.D.	N.D.
Copper	3	0.009	0.024
Zinc	5	0.07	0.11
Soluble iron	10	0.1	0.2
Soluble manganese	10	N.D.	N.D.
Total chromium	2	N.D.	0.01
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.	0.02
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	2.3	4.4
Nitrite compounds and nitrate compounds			
Nickel	5	0.01	0.06
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.
1,1,2-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
- SS: Suspended Solids
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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	83	110

- Unit: soot and dust, g/Nm³; NOx, ppm
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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	7.1–7.7*1
SS	45	2	7
BOD	30	4	6
n-hexane (mineral oil)	5	N.D.	0.6
Phenol	0.1	N.D.	N.D.
Copper	3	0.006	0.006
Zinc	5	0.012	0.012
Soluble iron	10	0.48	0.48
Soluble manganese	10	0.019	0.019
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.05	N.D.	N.D.
Cadmium	0.1	N.D.	N.D.
Cyanide	5	N.D.	N.D.
Lead	0.1	N.D.	0.02
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	1.9	1.9
Nitrite compounds and nitrate compounds			
Nickel	5	N.D.	0.03
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.
1,1,2-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
- SS: Suspended Solids
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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:

There is not release into air subject to monitoring, 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	7.4	7.2–7.6*1
SS	70	4.5	8
COD	20	3.6	9
COD (total pollutant load control)	114.4kg/day	12.1	26.3
BOD	20	2	3
n-hexane (mineral oil)	5	N.D.	N.D.
Copper	3	0.008	0.013
Number of coliform groups	3000	N.D.	N.D.
Total nitrogen	15	3.3	4.7
Total nitrogen (total pollutant load control)	84.3kg/day	11.3	17.0
Total phosphorus	3	0.24	0.46
Total phosphorus (total pollutant load control)	16.9kg/day	0.84	1.48
Cadmium	0.1	N.D.	N.D.
Cyanide	0.8	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Fluorine and its compounds	15 *2	N.D.	0.2
Boron and its compounds	25 *2	0.08	0.2
Ammonia			
Ammonium compounds	730 *2	2.1	3.3
Nitrite compounds and nitrate compounds			
Nickel	8	0.041	0.055
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.
1,1,2-trichloroethane	0.06	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.
1,1-dichloroethylene	0.2	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
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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	66	110

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

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

Chemical compound name	Amount released				Amount transferred		
	Atmosphere	Water	Soil	Landfill	Sewage	Waste	Recycling
Silver and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Toluene	6.7	0.0	0.0	0.0	0.0	153.6	399.1
Nickel	0.0	0.0	0.0	0.0	0.0	4.6	0.0
Nickel compounds	0.0	0.0	0.0	0.0	0.0	1.7	0.1
Barium and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	258.1	60.7
Di-n-butyl phthalate	0.0	0.0	0.0	0.0	0.0	1.6	0.0
Bis-2-ethylhexyl phthalate	0.0	0.0	0.0	0.0	0.0	7.5	0.0

- Unit: t/year

Environmental Data by Murata Plants

Kanazawa Murata Manufacturing Co., Ltd.

Chi-18, Sodanimachi, Tsurugi-machi, Ishikawa-gun, Ishikawa 920-2101, Japan
 Electricity consumption: 49,398,354 kWh/year
 Fuel consumption: 3,306 kℓ/year
 Total waste released: 967 t/year
 (Annual mean recycling ratio: 98.2%)

[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	7.8	7.4-8.2*1
SS	70	3.4	20
BOD	20	2	16
n-hexane (mineral oil)	5	N.D.	N.D.
Phenol	5	N.D.	N.D.
Copper	3	N.D.	N.D.
Zinc	5	0.08	0.21
Soluble iron	10	0.05	0.42
Soluble manganese	10	0.03	0.12
Total chromium	1.6	N.D.	N.D.
Hexavalent chromium	0.5	N.D.	N.D.
Number of coliform groups	3000	1	10
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	N.D.	N.D.
Boron and its compounds	25*2	0.2	0.3
Ammonia			
Ammonium compounds	730*2	2.6	6.6
Nitrite compounds and nitrate compounds			
Nickel	—	0.03	0.08
Antimony	—	0.007	0.012
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
- SS: Suspended Solids
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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.	N.D.
SOx	6.05	N.D.	N.D.
NOx	150	78	110
Hydrogen chloride	60	0.14	0.46
Fluorine compounds	10	N.D.	N.D.

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm; hydrogen chloride, fluorine compounds, mg/Nm³
- SOx: Sulfur oxides
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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.

Toiyama Murata Manufacturing Co., Ltd.

345, Ueno, Toyama-shi, Toyama 939-8195, Japan
 Electricity consumption: 39,219,663 kWh/year
 Fuel consumption: 305 kℓ/year
 Total waste released: 729 t/year
 (Annual mean recycling ratio: 75.7%)

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	7.4-7.8*1
SS	50	2.1	23
BOD	20	4.5	16
n-hexane (mineral oil)	3	0.17	1.1
Copper	3	0.025	0.038
Number of coliform groups	3000	N.D.	N.D.
Lead	0.1	0.01	0.07
Fluorine and its compounds	15*2	N.D.	N.D.
Boron and its compounds	25*2	0.07	0.07
Ammonia			
Ammonium compounds	730*2	3.6	3.9
Nitrite compounds and nitrate compounds			
Nickel	—	0.004	0.024
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
- SS: Suspended Solids
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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:

There is not release into air subject to monitoring, 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
Silver and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	0.1	4.2
Toluene	5.8	0.0	0.0	0.0	0.0	23.1	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	3.1	38.1
Nickel	0.0	0.0	0.0	0.0	0.0	1.1	2.0

- Unit: t/year

Komatsu Murata Manufacturing Co., Ltd.

93, Hikari-machi, Komatsu-shi, Ishikawa 923-8626, Japan
 Electricity consumption: 18,541,000 kWh/year
 Fuel consumption: 272 kl/year
 Total waste released: 316 t/year
 (Annual mean recycling ratio: 89.0%)

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	7.4–8.1*
SS	70	1	4
COD	30	5	15
BOD	30	7	22
Copper	3	0.09	0.21
Zinc	5	0.17	0.38
Soluble iron	10	0.1	0.3
n-hexane (mineral oil)	5	0.3	2.1
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.5	N.D.	N.D.
Number of coliform groups	3000	205	410
Cadmium	0.1	N.D.	N.D.
Lead	0.1	0.015	0.029
1,1,1-trichloroethane	3	N.D.	N.D.
Trichloroethylene	0.3	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
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	—	0.13	0.28
NOx	—	77	84

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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-machi, Hakui-shi, Ishikawa 925-8555, Japan
 Electricity consumption: 7,862,328 kWh/year
 Fuel consumption: 155 kl/year
 Total waste released: 375 t/year
 (Annual mean recycling ratio: 93.3%)

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	7.8	7.4–8.1*
SS	40	5.8	9
COD	90	4.1	4.9
BOD	40	1.0	2.4
n-hexane (mineral oil)	5	N.D.	N.D.
Copper	3	0.005	0.009
Soluble iron	10	1.2	1.9
Total chromium	2	N.D.	N.D.
Number of coliform groups	3000	6	16
Lead	0.1	0.03	0.06
1,1,1-trichloroethane	3	N.D.	N.D.
Trichloroethylene	0.3	N.D.	N.D.
Tetrachloroethylene	0.1	N.D.	N.D.

- Unit: pH, none; number of coliform groups, number/cc; others, mg/l
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	0.001	0.001
SOx	5.47	0.35	0.35
NOx	180	84	84

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides

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	1.3	0.0	0.0	0.0	0.0	3.9	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	28.1

- Unit: t/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	8.2	8.2*
SS	60	9	11
BOD	60	2.1	2.5
n-hexane (mineral oil)	5	N.D.	N.D.
Number of coliform groups	3000	21	29
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
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	0.22	0.22
NOx	180	96	96

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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.

Environmental Data by Murata Plants

Okayama Murata Manufacturing Co., Ltd.

77, Fukumoto, Oku-cho, Oku-gun, Okayama 701-4241, Japan
 Electricity consumption: 32,687,831 kWh/year
 Fuel consumption: 3,061 kℓ/year
 Total waste released: 1,177 t/year
 (Annual mean recycling ratio: 85.9%)

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	7.3-7.9*1
SS	30	N.D.	N.D.
COD	10	2.1	3.8
BOD	10	1.1	2.3
n-hexane (mineral oil)	2	0.1	0.6
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.05	N.D.	N.D.
Total nitrogen	60	4.1	8.1
Total phosphorus	8	0.04	0.24
Lead	0.1	0.01	0.06
Ammonia			
Ammonium compounds	730*2	3.41	5.96
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
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (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	N.D.	N.D.
SOx*	4.44	0.015	0.033
NOx	100	24	39

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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.

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	0.3	0.0	0.0	0.0	0.0	0.0	43.6
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	4.6
Nickel	0.0	0.0	0.0	0.0	0.0	0.0	3.2
Nickel compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Barium and its water-soluble compounds	0.0	0.0	0.0	0.0	0.0	0.0	5.1

• Unit: t/year

Sabae Murata Manufacturing Co., Ltd.

2-82, 1-chome, Miyuki-cho, Sabae-shi, Fukui 916-0015, Japan
 Electricity consumption: 10,840,224 kWh/year
 Fuel consumption: 297 kℓ/year
 Total waste released: 814 t/year
 (Annual mean recycling ratio: 86.3%)

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	7.2	6.5-7.7*
SS	300	10	19
Copper	3	0.34	1
Zinc	5	0.009	0.012
Soluble iron	10	0.02	0.05
Soluble manganese	10	N.D.	N.D.
Total chromium	2	N.D.	N.D.
Hexavalent chromium	0.5	N.D.	N.D.
Cyanide	1	N.D.	N.D.
Lead	0.1	0.01	0.08
Iodine	220	N.D.	N.D.
Fluorine and its compounds	8	0.4	0.9
Nickel	5	0.4	1.2

- Unit: pH, none; others, mg/ℓ
- pH: hydrogen ion concentration
- SS: Suspended Solids
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	2.1	0.12	0.18
NOx	260	48	55

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides

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	3.9	0.0

• Unit: t/year

Kanazu Murata Manufacturing Co., Ltd.

10-28, Hananomori 2-chome, Kanazu-cho, Sakai-gun, Fukui 919-0633, Japan
 Electricity consumption: 8,612,001 kWh/year
 Fuel consumption: 84 kℓ/year
 Total waste released: 232 t/year
 (Annual mean recycling ratio: 71.8%)

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	7.3-8.1*
SS	120	1.9	5.0
COD	160	1.4	2.8
BOD	120	0.7	2.3
n-hexane (mineral oil)	5	N.D.	N.D.
Lead	0.1	N.D.	N.D.
Total chromium	2	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
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	0.063	0.077
NOx	260	78	81

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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	8.0	7.9-8.0*
SS	200	N.D.	N.D.
COD	160	1.2	1.4
BOD	160	0.6	0.6
n-hexane (mineral oil)	5	N.D.	N.D.
Cadmium	0.1	N.D.	N.D.
Lead	0.1	N.D.	N.D.

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

Air quality data:

There is not release into air subject to monitoring, 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.

Himi Murata Manufacturing Co., Ltd.

12-5, Oura, Himi-shi, Toyama 935-0103, Japan
 Electricity consumption: 7,580,730 kWh/year
 Fuel consumption: 51 kℓ /year
 Total waste released: 338 t/year
 (Annual mean recycling ratio: 67.9%)

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	6.7	6.6–7.1*
SS	120	1.5	3.0
BOD	25	4.5	7.4
n-hexane (mineral oil)	5	0.9	1.5
Copper	1	0.032	0.036
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	0.011	0.020
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
- SS: Suspended Solids
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	0.018	0.018
SOx	13	0.017	0.018
NOx	180	79	79

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides

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	5.1	0.0	0.0	0.0	0.0	20.1	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	0.2	2.9

- Unit: t/year

Iwami Murata Manufacturing Co., Ltd.

Ohda Yi 795-1, Ohda-cho, Ohdashi, Shimane 694-0064, Japan
 Electricity consumption: 7,142,367 kWh/year
 Fuel consumption: 233 kℓ /year
 Total waste released: 303 t/year
 (Annual mean recycling ratio: 81.5%)

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	7.2–7.8*
SS	200	9.3	12
COD	160	6.5	8.9
BOD	160	2.9	4.2
n-hexane (mineral oil)	5	0.5	0.9
Copper	3	0.007	0.012
Zinc	5	0.08	0.13
Soluble iron	10	0.7	1.2
Soluble manganese	10	0.07	0.09
Number of coliform groups	3000	224	310
Lead	0.1	0.02	0.03
Nickel	—	N.D.	N.D.
Tin	—	N.D.	N.D.
Barium	—	0.27	0.72
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	0.001	0.003
Tetrachloroethylene	0.1	N.D.	N.D.

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

Air quality data:

There is not release into air subject to monitoring, 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
Xylene	3.0	0.0	0.0	0.0	0.0	0.1	0.0
Lead and its compounds	0.0	0.0	0.0	0.0	0.0	0.0	1.7

- Unit: t/year

Wakura Murata Manufacturing Co., Ltd.

1, U, Ishizaki-machi, Nanao-shi, Ishikawa 926-0173, Japan
 Electricity consumption: 4,407,000 kWh/year
 Fuel consumption: 140 kℓ /year
 Total waste released: 296 t/year
 (Annual mean recycling ratio: 76.4%)

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	7.9	7.6–8.0*
SS	90	11	31
COD	40	11	36
BOD	40	7	23
n-hexane (mineral oil)	5	0.5	1.5
Copper	3	0.007	0.021
Number of coliform groups	3000	102	540
Total nitrogen	120	14	60
Total phosphorus	16	1.8	6.9
Lead	0.1	N.D.	N.D.

- Unit: pH, none; number of coliform groups, number/cc; others, mg/ℓ
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	65	68

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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	0.1	5.2

- Unit: t/year

Environmental Data by Murata Plants

Anamizu Electronics Industries, Ltd.

Chi-53, Ohmachi, Anamizu-machi, Fugeshi-gun, Ishikawa 927-0026, Japan
 Electricity consumption: 2,431,224 kWh/year
 Fuel consumption: 36 kℓ/year
 Total waste released: 95 t/year
 (Annual mean recycling ratio: 81.4%)

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	7.2	6.8–7.8*
SS	200	14	17
COD	80	15	24
n-hexane (mineral oil)	5	1.4	2.0
Zinc	5	0.13	0.41
Soluble iron	10	0.16	0.37
Lead	0.1	0.02	0.05
Fluorine and its compounds	15*2	0.1	0.2
Boron and its compounds	25*2	0.05	0.12
Ammonia Ammonium compounds Nitrite compounds and nitrate compounds	730*2	4.7	7.5
Nickel	—	N.D.	0.016
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
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	0.018	0.02
NOx	180	70	72

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides
- N.D.: not greater than minimum limit of determination (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	25.6

- Unit: t/year

Asuwa Electronics Industries, Ltd.

1321, Emorinaka 2-chome, Fukui-shi, Fukui 918-8025, Japan
 Electricity consumption: 880,410 kWh/year
 Fuel consumption: none
 Total waste released: 12 t/year
 (Annual mean recycling ratio: 56.8%)

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	8.0	7.7–8.2*
SS	200	12	16
BOD	160	19	35
n-hexane (mineral oil)	5	N.D.	N.D.
Number of coliform groups	3000	8	16
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
- SS: Suspended Solids
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: The minimum to maximum pH values.

Air quality data:

There is not release into air subject to monitoring, 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: 5,487,411 kWh/year
 Fuel consumption: 172 kℓ/year
 Total waste released: 41 t/year
 (Annual mean recycling ratio: 88.3%)

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	6.0	5.2–6.4*
SS	600	28	47
COD	—	38	49
BOD	600	41	61
n-hexane (animal and plant)	30	3	7
Copper	3	0.010	0.013
Zinc	5	0.03	0.04
Fluorine and its compounds	8	N.D.	N.D.
Boron and its compounds	10	0.02	0.03
Contents ammonia nitrogen, nitrite nitrogen and nitrate nitrogen	380	0.2	0.4

- Unit: pH, none; others, mg/ℓ
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	0.031	0.036
NOx	180	68	72

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides
- 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.

Azumi Murata Manufacturing Co., Ltd.

1020, Takibe, Toyoshina-machi, Minamiazumigun, Nagano 399-8294, Japan
 Electricity consumption: 10,635,270 kWh/year
 Fuel consumption: 879 kl/year
 Total waste released: 836 t/year
 (Annual mean recycling ratio: 84.6%)

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	6.9	6.8–6.9*
SS	50	2.5	3.0
COD	30	12	13
BOD	30	6	7
n-hexane (mineral oil)	5	1.8	2.0
Copper	3	0.034	0.035
Zinc	5	0.03	0.04
Soluble iron	10	0.07	0.13
Lead	0.005	N.D.	N.D.

- Unit: pH, none; others, mg/l
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	0.0030	0.0053
SOx	6.3	0.012	0.024
NOx	150	69	91

- Unit: soot and dust, g/Nm³; SOx, Nm³/h; NOx, ppm
- SOx: Sulfur oxides
- NOx: Nitrogen oxides

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	0.0	4.0
Nickel compounds	0.0	0.0	0.0	0.0	0.0	10.8	0.2

- Unit: t/year

Murata Electronics North America, Inc. State College Operations

1900 W. College Avenue
 State College, PA 16801-2799 USA
 Electricity consumption: 25,970,589 kWh/year
 Fuel consumption: 637 kl/year
 Total waste released: 443 t/year
 (Annual mean recycling ratio: 33.5%)

Water quality data:

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

Item	Target level	Average	Max. value
BOD	—	19	31
Zinc	1.48	0.01	0.02
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.
Dichloromethane	1	0.004	0.014
Toluene	0.5	N.D.	N.D.
Barium	—	0.8	2.4
DBP	—	0.1	0.2
Nickel	3.1	N.D.	0.53
Tin	—	2	15
Xylene	2.1	N.D.	N.D.
1,1,1-trichloroethane	1.5	N.D.	N.D.
γ-BHC	0.003	N.D.	N.D.
DOP	—	N.D.	N.D.

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

Air quality data:

There is not release into air subject to monitoring, and no measurement is performed for this purpose.

Murata Amazônia Indústria E Comércio Ltda. Manaus Factory

Avenida Burity 7040, Distrito Industrial
 Manaus-Amazonas Brazil
 CEP 690750-000
 Electricity consumption: 493,920 kWh/year
 Fuel consumption: none
 Total waste released: 12 t/year
 (Annual mean recycling ratio: 51.1%)

Water quality data:

There is no waste water subject to monitoring, and no measurement is performed for this purpose.

Air quality data:

There is not release into air subject to monitoring, and no measurement is performed for this purpose.

Murata Manufacturing (UK) Limited

Thornbury Road, Estover Plymouth, Devon PL6 7PP,
 United Kingdom
 Electricity consumption: 1,821,801 kWh/year
 Fuel consumption: 75 kl/year
 Total waste released: 131t/year
 (Annual mean recycling ratio: 74.9%)

Water quality data:

There is no waste water subject to monitoring, and no measurement is performed for this purpose.

Air quality data:

Item	Target level	Average	Max. value
CO	—	63	75
CO ₂	—	8.6	8.8
Temperature*	—	101	88*

- Unit: CO, ppm; CO₂, %; Temperature, °C
- CO: Carbon monoxide
- CO₂: Carbon dioxide
- *: Lowest temperature
- [Target level]: No particular standard value per currently effective laws or

Environmental Data by Murata Plants

Beijing Murata Electronics Co., Ltd.

No. 11 Tianzhu Road, Tianzhu Airport Industry Zone, Shunyi, Beijing 101312, China
 Electricity consumption: 6,581,400 kWh/year
 Fuel consumption: none
 Total waste released: 89 t/year
 (Annual mean recycling ratio: 45.0%)

Water quality data:

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

Item	Target level	Average	Average
pH	6.0–8.5	7.4	7.3–7.5*
SS	50	N.D.	N.D.
COD	60	50	54
Nickel	0.5	N.D.	N.D.

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

Air quality data:

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

Item	Target level	Average	Average
Organic matters belonging to hydrocarbon groups other than methanes	120	1.3	2.9

- Unit: mg/Nm³

Wuxi Murata Electronics Co., Ltd.

Lot 123-135, Xingchuang 1st Road, Wuxi-Singapore Industrial Park, Wuxi, Jiangsu 214028, China
 Electricity consumption: 7,269,996 kWh/year
 Fuel consumption: 79 kℓ/year
 Total waste released: 191 t/year
 (Annual mean recycling ratio: 58.9%)

Water quality data:

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

Item	Target level	Average	Max. value
SS	400	58	58
COD	500	111	111
Total lead	1	N.D.	N.D.
Ammonical nitrogen	35	N.D.	N.D.

- Unit: mg/ℓ
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)

Air quality data:

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

Item	Target level	Average	Max. value
Dust	50	32	32
NOx	100	30	30
SOx	-	38	38

- Unit: mg/Nm³
- SOx: Sulfur oxides
- NOx: Nitrogen oxides

Taiwan Murata Electronics Co., Ltd.

Taiwan Murata Electronics Co., Ltd.
 225 Chung-Chin Road, Taichung, Taiwan
 Electricity consumption: 7,255,998 kWh/year
 Fuel consumption: 1.6 kℓ/year
 Total waste released: 279 t/year
 (Annual mean recycling ratio: 88.7%)

Water quality data:

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

Item	Target level	Average	Average
pH	6.0–9.0	7.5	7.4–7.6* ¹
SS	80	8	13
COD	250	29	32
BOD	80	12	13
Temperature	35°C	28	32
Number of coliform groups	-	60	100
Dissolved Oxygen (DO)	3 min.	6.4	4.2* ²

- Unit: pH, none; number of coliform groups, number/cc; temperature, °C; others, mg/ℓ
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- *¹: The minimum to maximum pH values.
- *²: The minimum Dissolved Oxygen (DO) value.
- [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
Dust (emission point (1))	500	293	384
Dust (emission point (2))	410	N.D.	N.D.
Dust (emission point (3))	389	N.D.	N.D.
Dust (emission point (4))	124.88	N.D.	N.D.
Lead (emission point (2))	10	N.D.	N.D.
Lead (emission point (3))	10	N.D.	N.D.
Lead (emission point (4))	2.51	N.D.	N.D.

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

Murata Electronics Singapore (Pte.) Ltd.

200 Yishun Avenue 7, Singapore 768927, Singapore
 Electricity consumption: 68,852,991 kWh/year
 Fuel consumption: none
 Total waste released: 1,261 t/year
 (Annual mean recycling ratio: 42.5%)

Water quality data:

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

Item	Target level	Average	Average
pH	6.0–9.0	7.8	7.1–8.4*
SS	400	10	34
COD	600	85	236
BOD	400	24	182
TDS	3000	1960	2964
Sulfate	1000	402	834
Fat and oil (hydrocarbon)	60	2	41
Fat and oil (glyceride)	100	4	47
Barium	10	N.D.	0.7
Nickel	10	0.4	1.8
Tin	10	N.D.	1.2

- Unit: pH, none; others, mg/ℓ
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- TDS: Total Dissolved Nitrogen
- *: 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
Ammonia and ammonium compounds	76	N.D.	N.D.
Sulfuric acid (as SO ₃)	100	N.D.	1.2
Dust	100	N.D.	5
CO	625	4	7
Nitrogen oxide (as NO ₂)	700	N.D.	N.D.
Copper and its compounds	5	N.D.	N.D.

- Unit: mg/Nm³
- CO: Carbon monoxide
- N.D.: not greater than minimum limit of determination (Not Detected)

Murata Electronics (Thailand), Ltd.

Northern Region Industrial Estate, 63 Moo 4, Tambol Ban-Klang, Amphur Muang, Lamphun 51000, Thailand
 Electricity consumption: 31,944,060 kWh/year
 Fuel consumption: none
 Total waste released: 1,976 t/year
 (Annual mean recycling ratio: 23.5%)

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	7.1	6.9–7.9*
SS	200	51	98
COD	750	215	454
BOD	500	98	188
TDS	3000	365	770
TKN	100	77	91
Phenol	1	0.08	0.23
Copper	2	0.021	0.067
Zinc	5	0.1	0.2
Total iron	10	0.074	0.091
Trivalent chromium	0.75	N.D.	N.D.
Hexavalent chromium	0.25	N.D.	N.D.
Lead	0.2	0.018	0.063
Fluoride	5	0.32	0.35
Sulfide	1	0.31	0.42
Cadmium	0.03	N.D.	N.D.
Selenium	0.02	N.D.	N.D.
Barium	1	0.02	0.11
Nickel	1	0.005	0.008
Formaldehyde	1	0.12	0.15
Chloride	2000	63	69
Oils and grease	10	N.D.	7.1
Odor	Not perceived	Satisfactory	—
Color	No color	Satisfactory	—
Temperature	45	31	33

- Unit: pH, none; temperature, °C; others, mg/l
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- TDS: Total Dissolved Nitrogen
- TKN: Total Kjeldahl Nitrogen
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	14	128
Antimony	20	0.01	0.09
Lead	30	0.03	0.19
Chlorine	30	0.031	0.1
Hydrogen chloride	200	N.D.	N.D.
Mercury	3	N.D.	N.D.
Carbon monoxide	1000	28	243
Sulfuric acid	100	1.9	14
Hydrogen sulfide	140	N.D.	N.D.
Sulfur dioxide	1300	0.3	2.0
Nitrogen dioxide	470	4	10
Xylene	870	N.D.	N.D.
Cresol	22	N.D.	N.D.

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

Murata Electronics (Malaysia) Sdn. Bhd.

Plot 15, Bemban Industrial Park, Jalan Bemban, 31000 Batu Gajah, Perak, Malaysia
 Electricity consumption: 3,832,158 kWh/year
 Fuel consumption: 7.2 kl/year
 Total waste released: 208 t/year
 (Annual mean recycling ratio: 89.6%)

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	6.7	5.7–7.7*
SS	100	11	21
COD	100	31	81
BOD	50	10	38
Oils and grease	10	3	7

- Unit: pH, none; others, mg/l
- pH: hydrogen ion concentration
- SS: Suspended Solids
- COD: Chemical Oxygen Demand
- BOD: Biochemical Oxygen Demand
- N.D.: not greater than minimum limit of determination (Not Detected)
- *: 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	0.3	0.4

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