Safety & Environmental Report 2025

Data by Site

Notes on figures

- The Energy Consumption statistics are crude-oil equivalents of heavy oil, diesel oil, kerosene, gasoline, LP gas or etc.
- The recycling ratio represents the percentage of sold-off/recycled waste.
- Air emission data is measured at exhaust vents and water quality data at the final discharge outlet.
- For PRTR-targeted substances, Special Class 1 restricted substances (the amount usage of 0.5 ton or more per year) and Class 1 restricted substances (the amount usage of 1 ton or more per year) are stated in this report. Figures are rounded to one decimal place.
- All data was from FY2024. It was measured between April 1st, 2024 and March 31, 2025.

Notes on Standard Values

- The standard value for air emission is set to the strictest standard value referrig to applicable laws, regulations and standards for the equipments. The observed values are the minimum/maximum among recorded values during the period.
- The standard values for air emission and water quality are the strictest values referring to the applicable laws, regulations and customer's agreements at each site.
- Column marked with an Em Dash ("-") indicates that they are not indispensable.

About Self-Control Standard

- It is the standard to control which defined by calculating value of processing ability from value of past performance. (self-control standard≦legal standard)

TAIYO YUDEN CO., LTD. Takasaki Global Center

- Total energy consumption (Crude oil equivalent) : 285 kL/year
- Total waste generated : 39 tons/year (recycling rate: 100 %)
- Air emission : Measurement was not performed since no facility was subject to legal regulations.
- Water quality : Measurement was not performed since no facility was subject to legal regulations.
- PRTR restricted substances : Total usage amount is under notification obligation.
- Water source : Tone River
- Drain destination : Karasu River(Via Sewage)

TAIYO YUDEN CO., LTD. Haruna Plant

- Total energy consumption (Crude oil equivalent) : 7,531 kL/year
- Total waste generated : 273 tons/year (recycling rate: 100 %)
- Air emission : **Air Pollution Control Act and Prefectural Ordinances**

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Firing furnace (Electricity)		Soot and dust	0.25	0.01	g/m^{3}N	<0.002
Generator (Diesel)	Heavy oil A	SOx	8	8	K値	0.31
		NOx	950	950	ppm	740
		Soot and dust	0.1	0.1	g/m^{3}N	0.04

- Water quality : **Water Quality Pollution Control Act**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	6.5～8.0	-	7.3	7.5	7.8
Biochemical oxygen demand	25	15	mg/L	<1	1	24
Suspended solids	50	10	mg/L	<1	1.5	2
N-hexane extract (mineral content)	5	2	mg/L	<1		
Copper content	3	0.1	mg/L	<0.01		
Zinc content	2	0.1	mg/L	0.01	0.02	0.03
Soluble iron content	10	0.1	mg/L	<0.01	0.02	0.03
Soluble manganese content	10	0.1	mg/L	<0.01		
Chromium content	2	0.02	mg/L	<0.01		
Nitrogen content	120	12	mg/L	4.1	5.2	6.4
Phosphorus content	16	0.2	mg/L	<0.05	0.13	0.16
Cadmium and its compounds	0.03	0.02	mg/L	<0.003		
Lead and its compounds	0.1	0.02	mg/L	<0.01		
Arsenic and its compounds	0.1	0.02	mg/L	<0.01		
Boron and its compounds	10	0.3	mg/L	0.09	0.13	0.19
Fluorine and its compounds	8	0.2	mg/L	<0.01		
Ammonia, ammonium compounds, nitrite compounds and nitrate compounds	100	20	mg/L	3.8	4.7	5.9

- PRTR restricted substances : Total usage amount is under notification obligation.
- Water source : Spring Water
- Drain destination : Karasu River

TAIYO YUDEN CO., LTD. Nakanojo Plant

■ Total energy consumption (Crude oil equivalent) : 2,599 kL/year

■ Total waste generated : 182 tons/year (recycling rate: 100 %)

■ Air emission : **Air Pollution Control Act and Prefectural Ordinances**

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Firing furnace (Electricity)		Soot and dust	0.25	0.06	g/m^{3}N	0.006
Firing furnace	LP gas	NOx	180	35	ppm	6
		Soot and dust	0.25	0.005	g/m^{3}N	<0.002

■ Water quality : **Sawage Ordinance (Town of Nakanojo)**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.0～9.0	5.0～8.1	-	7.4	7.9	8.1
Biochemical oxygen demand	600	132	mg/L	4	28	110
Suspended solids	600	18	mg/L	2	6	17
N-hexane extract (mineral content)	5	1	mg/L	<1		
N-hexane extract (animal/plant content)	30	6	mg/L	<1		
Copper content	3	0.12	mg/L	0.02	0.05	0.11
Zinc content	2	0.39	mg/L	0.01	0.14	0.61
Soluble iron content	10	0.06	mg/L	0.01	0.02	0.03
Soluble manganese content	10	0.01	mg/L	<0.01		
Boron and its compounds	10	0.07	mg/L	0.02	0.03	0.04

■ PRTR restricted substances In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Chromium and trivalent chromium compounds	0	0	0.1
Nickel compounds	0	0	6.16

■ Water source : Spring Water

■ Drain destination : Momose River(Via Sewage)

TAIYO YUDEN CO., LTD. Tamamura Plant

■ Total energy consumption (Crude oil equivalent) : 22,693 kL/year

■ Total waste generated : 1,783 tons/year (recycling rate: 100 %)

■ Air emission : **Air Pollution Control Act**

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Firing furnace (Electricity)		Soot and dust	0.25	0.03	g/m^{3}N	0.024

■ Water quality : **Water Quality Pollution Control Act and Agreement**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	6.9～8.0	-	7.3	7.6	8
Biochemical oxygen demand	25	13	mg/L	<1	1.4	5
Suspended solids	50	30	mg/L	<1	1.4	5
N-hexane extract (mineral content)	5	1	mg/L	<1		
N-hexane extract (animal/plant content)	30	1	mg/L	<1		
Copper content	10	0.03	mg/L	0.02		
Zinc content	10	0.5	mg/L	0.05		
Soluble iron content	2	0.12	mg/L	0.03		
Soluble manganese content	8	0.5	mg/L	0.04		
Chromium content	0.1	0.01	mg/L	<0.01		
Coliform bacteria count	3,000	1,400	Num/cm^3	<30		
Nitrogen content	120	18	mg/L	3.9	6.3	9.1
Phosphorus content	16	5	mg/L	0.7	1.5	2.4
Lead and its compounds	2	0.01	mg/L	<0.01		
Arsenic and its compounds	0.1	0.01	mg/L	<0.01		
Fluorine and its compounds	3	0.3	mg/L	<0.1		
Nickel content	0.3	0.3	mg/L	0.02	0.05	0.07

■ PRTR restricted substances In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Toluene	11.3	0	10.3
Nickel	0.02	0	15.7
Nickel compounds	0	0	0.7
Methylnaphthalene	0.08	0	0

■ Water source : Tone River

■ Drain destination : Karasu River

TAIYO YUDEN CO., LTD. Yawatabara Plant

■ Total energy consumption (Crude oil equivalent) : 3,073 kL/year

■ Total waste generated : 69 tons/year (recycling rate: 100 %)

■ Air emission : **Air Pollution Control Act**

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Firing furnace (Electricity)		Soot and dust	0.25	0.01	g/m^3N	0.002

■ Water quality: **Pollution Control Agreement**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	6.4～8.3	-	7.3	7.8	8
Biochemical oxygen demand	25	14	mg/L	1	1.1	2
Suspended solids	50	20	mg/L	1	2.1	6
N-hexane extract (animal/plant content)	30	1.2	mg/L	1		
Soluble iron content	10	10	mg/L	0.02		
Soluble manganese content	10	10	mg/L	0.01		
Coliform bacteria count	3,000	3,000	Num/cm^3	30	66	460
Nitrogen content	120	16	mg/L	1.5	5	21
Phosphorus content	16	2.7	mg/L	0.1	0.8	2.5

■ PRTR restricted substances : Total usage amount is under notification obligation.

■ Water source : Tone River

■ Drain destination : Karasu River

TAIYO YUDEN CO., LTD. R&D Center

- Total energy consumption (Crude oil equivalent) : 1,603 kL/year
- Total waste generated : 139 tons/year (recycling rate: 100 %)
- Air emission : Measurement was not performed since no facility was subject to legal regulations.
- Water quality : **Pollution Control Agreement**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	6.0～8.4	-	6.4	7.3	7.7
Biochemical oxygen demand	25	18	mg/L	2	6.8	13
Suspended solids	50	30	mg/L	3	7	12
N-hexane extract (animal/plant content)	30	10	mg/L	1		
Phenolic content	1	0.3	mg/L	0.1		
Copper content	3	0.1	mg/L	0.01		
Zinc content	2	0.2	mg/L	0.05		
Soluble iron content	10	0.1	mg/L	0.04		
Soluble manganese content	10	0.1	mg/L	0.01		
Chromium content	2	0.1	mg/L	0.01		
Coliform bacteria count	3,000	500	Num/cm^3	30		
Nitrogen content	120	80	mg/L	25	39	58
Phosphorus content	16	12	mg/L	3.2	4.7	5.7
Boron and its compounds	10	0.2	mg/L	0.01		
Fluorine and its compounds	8	0.2	mg/L	0.1		
Ammonia, ammonium compounds, nitrite compounds and nitrate compounds	100	60	mg/L	24.1		

- PRTR restricted substances : Total usage amount is under notification obligation.
- Water source : Groundwater Wells
- Drain destination : Karasu River

TAIYO YUDEN CHEMICAL TECHNOLOGY CO., LTD.

■ Total energy consumption (Crude oil equivalent) : 2,658 kL/year

■ Total waste generated : 1,297 tons/year (recycling rate: 100 %)

■ Air emission : Measurement was not performed since no facility was subject to legal regulations.

■ Water quality : **Water Quality Pollution Control Act and Agreement**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	6.2～7.8	-	5.7*1	6.8	7.4
Biochemical oxygen demand	25	15	mg/L	1	12	37*2
Suspended solids	50	36	mg/L	9	22	43
N-hexane extract (animal/plant content)	5	1	mg/L	<1		
Phenolic content	1	0.1	mg/L	<0.1		
Copper content	3	2.5	mg/L	0.24	0.6	1
Zinc content	2	0.13	mg/L	0.04	0.08	0.13
Soluble iron content	10	1.3	mg/L	<0.01	0.09	0.17
Soluble manganese content	10	0.62	mg/L	0.22	0.58	0.97
Chromium content	2	0.01	mg/L	<0.01		
Coliform bacteria count	3,000	150	Num/cm^3	<30		
Nitrogen content	60	51	mg/L	25	42	52
Phosphorus content	16	8	mg/L	0.7	3.7	10
Formaldehyde	10	1	mg/L	<1		
Boron and its compounds	10	2.9	mg/L	1.1	1.9	2.6
Fluorine and its compounds	8	0.5	mg/L	<0.1	0.1	0.2
Ammonia, ammonium compounds, nitrite compounds and nitrate compounds	100	28.7	mg/L	14.4	17	19.7

*1・2: Hydrogen ion concentration and Biochemical oxygen demand exceeds the legal standard because of the temporary change in the number of workers.

■ PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Nickel	0.2	0	11.3
Nickel compound	0.7	4.9	0
Boron compound	0.3	0.3	0

■ Water source : Kanna River

■ Drain destination : Ayu River

TAIYO YUDEN TECHNO SOLUTIONS CO., LTD.

- Total energy consumption (Crude oil equivalent) : 491 kL/year
- Total waste generated : 21 tons/year (recycling rate: 100 %)
- Air emission : Measurement was not performed since no facility was subject to legal regulations.
- Water quality : Measurement was not performed since no facility was subject to legal regulations.
- Water source : Tone River
- Drain destination : Karasu River

FUKUSHIMA TAIYO YUDEN CO., LTD.

- Total energy consumption (Crude oil equivalent) : 4,670 kL/year
- Total waste generated : 471 tons/year (recycling rate: 100 %)
- Air emission : Measurement was not performed since the facility subjected to legal regulations was out of service.
- Water quality : **Pollution Control Agreement**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	6.3～8.3	-	6.5	7.3	7.8
Biochemical oxygen demand	20	11.7	mg/L	1	2	5.7
Suspended solids	50	11.5	mg/L	1	1.9	9.4
N-hexane extract (mineral content)	1	0.5	mg/L	0.5		
N-hexane extract (animal/plant content)	10	0.6	mg/L	0.5		
Phenolic content	1	0.03	mg/L	0.02		
Copper content	2	0.1	mg/L	0.01	0.01	0.03
Zinc content	2	0.59	mg/L	0.05	0.2	0.6
Soluble iron content	10	0.69	mg/L	0.17	0.25	0.41
Soluble manganese content	10	0.05	mg/L	0.01	0.03	0.04
Chromium content	2	0.06	mg/L	0.05		
Coliform bacteria count	3,000	648	Num/cm^3	N.D.	54	560
Nitrogen content	120	28.4	mg/L	0.3	8.3	28
Phosphorus content	16	3.6	mg/L	0.02	0.8	4.2
Boron and its compounds	10	1.48	mg/L	1	1.3	1.4
Fluorine and its compounds	8	0.05	mg/L	0.05		

- PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Silver and its water-soluble compounds	0	0	5
Chromium and trivalent chromium compounds	0	0.1	0
Boron compound	0	0.1	0

- Water source : Surigami River
- Drain destination : Abukuma River

NIIGATA TAIYO YUDEN CO., LTD.

■ Total energy consumption (Crude oil equivalent) : 47,630 kL/year

■ Total waste generated : 6,722 tons/year (recycling rate: 100 %)

■ Air emission : **Air Pollution Control Act**

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Firing furnace (Electricity)		Soot and dust	0.25	0.17	g/m^{3}N	0.03

■ Water quality : **Water Quality Pollution Control Act is not applicable to this site and measurement was performed voluntarily.**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	6.0～8.4	-	7	7.4	7.9
Biochemical oxygen demand	160	24	mg/L	2.6	5.3	11
Suspended solids	200	20	mg/L	1	4.9	11
N-hexane extract (mineral content)	5	1	mg/L	0.5		
Copper content	3	0.2	mg/L	0.03	0.04	0.05
Zinc content	2	1.2	mg/L	0.1	0.12	0.14
Soluble iron content	10	0.41	mg/L	0.05	0.07	0.08
Soluble manganese content	10	0.05	mg/L	0.02	0.03	0.03
Chromium content	2	0.01	mg/L	0.01		
Coliform bacteria count	3,000	800	Num/cm^3	N.D.	0.5	4
Nitrogen content	120	6	mg/L	0.9	1.6	2.2
Phosphorus content	16	1.3	mg/L	0.06	0.32	0.59
Lead and its compounds	0.1	0.01	mg/L	0.01		
Arsenic and its compounds	0.1	0.01	mg/L	0.01		
Fluorine and its compounds	8	0.6	mg/L	0.5		
Nickel content	—	0.19	mg/L	0.03	0.04	0.05

■ PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Toluene	21.9	17.9	21.9
Nickel	0	3.7	73.5
Nickel compounds	0	0.2	3.1

■ Water source : Kakizaki River

■ Drain destination : Hokura River

WAKAYAMA TAIYO YUDEN CO., LTD.

■ Total energy consumption (Crude oil equivalent) : 4,447 kL/year

■ Total waste generated : 233 tons/year (recycling rate: 100 %)

■ Air emission : Measurement was not performed since no facility was subject to legal regulations.

■ Water quality : **Water Quality Pollution Control Act and Enforcement Ordinance of the Anti-pollution Regulation (Wakayama Prefecture)**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	5.8～8.6	-	6.4	6.85	7.8
Biochemical oxygen demand	160	47	mg/L	1.4	7.6	19
Chemical oxygen demand	160	50	mg/L	2.1	11.3	23
Suspended solids	200	31	mg/L	1	6.4	22
N-hexane extract (mineral content)	5	0.5	mg/L		0.5	
N-hexane extract (animal/plant content)	30	3.2	mg/L	0.5	0.9	1.5
Phenolic content	5	0.5	mg/L		0.5	
Copper content	3	0.3	mg/L		0.3	
Zinc content	2	0.4	mg/L		0.2	
Soluble iron content	10	0.1	mg/L	0.1	0.11	0.2
Soluble manganese content	10	0.1	mg/L		0.1	
Chromium content	2	0.2	mg/L		0.2	
Coliform bacteria count	3,000	2,040	Num/cm^3	1	12	44
Nitrogen content	120	71	mg/L	0.21	1.2	2.9
Phosphorus content	16	11	mg/L	0.01	0.02	0.04
Boron and its compounds	10	0.1	mg/L		0.1	
Fluorine and its compounds	8	0.8	mg/L		0.8	
Ammonia, ammonium compounds, nitrite compounds and nitrate compounds	100	6.46	mg/L	0.2	0.6	1.2
Nickel content	3	0.01	mg/L		0.01	

■ PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Silver and its water-soluble compounds	0	4.1	0
Chromium and trivalent chromium compounds	0	1.1	0
Toluene	1.3	4.7	0

■ Water source : Kirime River

■ Drain destination : Inami River

TAIYO YUDEN Mobile Technology Co., Ltd.

■ Total energy consumption (Crude oil equivalent) : 11,324 kL/year
■ Total waste generated : 92 tons/year (recycling rate: 100 %)

<<Head Office / Main Plant>>

■ Air emission : **Air Pollution Control Act**

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Boiler	Town gas	NOx	45	42	ppm	39
		Soot and dust	0.1	0.05	g/m^3N	0.003
Cogeneration facility	Town gas	NOx	500	250	ppm	420
		Soot and dust	0.05	0.025	g/m^3N	0.002

■ Water quality : **Sewerage Act, Sewerage Regulations**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.7～8.7	6.1～8.3	-	6.6	7	7.2
Biochemical oxygen demand	300	240	mg/L	22	66	87
Suspended solids	300	120	mg/L	1.6	23.8	46
Copper content	3	0.3	mg/L	0.05	0.1	0.2
Nitrogen content	120	102	mg/L	8.7	17.5	25
Phosphorus content	16	6	mg/L	0.2	0.6	1.1
Boron and its compounds	10	2	mg/L		0.1	
Fluorine and its compounds	8	5.5	mg/L	0.3	0.8	1.7
Nickel content	—	2.2	mg/L	0.05	0.07	0.12

■ PRTR restricted substances : Total usage amount is under notification obligation.
■ Water source : Tama River
■ Drain destination : Tama River(Via sewage)

<<Tokorozawa Plant>>

■ Air emission : Measurement was not performed since no facility was subject to legal regulations.

■ Water quality : **Water Quality Pollution Control Act and Sewerage Act**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.0～9.0	6.0～8.0	-	6.8	7.1	7.3
Biochemical oxygen demand	600	20	mg/L	1	1.6	2.1
Suspended solids	600	320	mg/L	1	9.1	35
N-hexane extract (mineral content)	5	0.5	mg/L		<0.2	
Nitrogen content	240	30	mg/L	3.3	14	21
Phosphorus content	32	3.2	mg/L		0.1	

■ PRTR restricted substances : Total usage amount is under notification obligation.
■ Water source : Ara River
■ Drain destination : Singashi River(Via Sewage)

Kankyo Assist Co., Ltd.

- Total energy consumption (Crude oil equivalent) : 32 kL/year
- Total waste generated : 4 ton/year (recycling rate: 100 %)
- Air emission : Measurement was not performed since no facility was subject to legal regulations.
- Water quality : Measurement was not performed since no facility was subject to legal regulations.
- PRTR restricted substances : Total usage amount is under notification obligation.
- Water source : Tone River
- Drain destination : Karasu River

ELNA CO., LTD.

- Total energy consumption (Crude oil equivalent) : 3,618 kL/year
- Total waste generated : 578 tons/year (recycling rate: 100 %)

<<Shirakawa Plant>>

- Air emission : Measurement was not performed since no facility was subject to legal regulations.
- Water quality : **Water Quality Pollution Control Act Prefectural Ordinances**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	5.8～8.6	-	7.1	7.4	7.6
Biochemical oxygen demand	40	20	mg/L	4	4.3	4.6
Chemical oxygen demand	40	20	mg/L	7.9	8.5	9
Suspended solids	70	10	mg/L	<1	1.7	2.4
N-hexane extract (mineral content)	1	1	mg/L	<0.5	0.8	1
Coliform bacteria count	3,000	3,000	Num/cm^3	N.D.	480	960

- PRTR restricted substances : Total usage amount is under notification obligation.
- Water source : Hokkwa River
- Drain destination : Hokkwa River

<<Aomori Plant>>

- Air emission : Measurement was not performed since no facility was subject to legal regulations.
- Water quality : **Sewerage Regulations**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.0～9.0	5.0～9.0	-	7.1	7.9	8.6
Biochemical oxygen demand	600	300	mg/L	7.2	186.4	680[*1]
Suspended solids	600	100	mg/L	1	66.9	220
N-hexane extract (mineral content)	5	2	mg/L	0.5	0.8	1.9
N-hexane extract (animal/plant content)	30	30	mg/L	0.5	5.6	15

*1: Biochemical oxygen demand exceeds the legal standard because of the temporary change in the number of workers.

- PRTR restricted substances : Total usage amount is under notification obligation.
- Water source : Asaseishikawa River
- Drain destination : Iwaki River(Via Sewage)

KOREA KYONG NAM TAIYO YUDEN CO., LTD.

■ Total energy consumption (Crude oil equivalent) : 44,756 kL/year

■ Total waste generated : 6,526 tons/year (recycling rate: 89.6 %)

■ Air emission :

Equipment	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Scrubber	Soot and dust	30	5.9	g/m^3N	1
	Ammonia	30	3	ppm	N.D.
	SOx	98	6.7	ppm	N.D.
	Copper	4	0.2	g/m^3N	N.D.
	Nickel	0.98	0.4	g/m^3N	0.002
	Total Hydrocarbon	200	55	ppm	5.1
Regenerative Thermal Oxidizer (RTO)	Toluene	30	0.8	ppm	N.D.
	Nickel	0.98	0.4	g/m^3N	0.005
	Total Hydrocarbon	100	45	ppm	53.7
Drying furnace	Soot and dust	30	4.5	g/m^3N	4.8
Bag filter	Soot and dust	30	4.5	g/m^3N	1.5

■ Water quality :

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8～8.6	6.0～8.0	-	7.4	7.7	8
Biochemical oxygen demand	300	34	mg/L	6.9	14.9	22.9
Total organic carbon	170	10	mg/L	3.3	4.7	6.1
Suspended solids	300	25	mg/L	8	15.4	22.8
N-hexane extract (mineral content)	5	1.1	mg/L	N.D.		
N-hexane extract (animal/plant content)	30	1.1	mg/L	N.D.		
Copper content	3	1	mg/L	0.12	0.13	0.15
Fluorine and its compounds	15	2	mg/L	N.D.		
Nitrogen content	60	42	mg/L	23.9	29.5	35.1
Phosphorus content	20	1.5	mg/L	0.14	0.15	0.16
Anionic surfactant	5	0.5	mg/L	N.D.		
Tin content	5	0.5	mg/L	0	0.025	0.05
Nickel content	3	1.5	mg/L	0.29	0.31	0.33
Chromium content	2	1	mg/L	N.D.		
Zinc content	5	0.3	mg/L	0.009	0.015	0.027
Phenol content	3	1.5	mg/L	N.D.		
Soluble manganese content	10	0.2	mg/L	0.007	0.015	0.022
Soluble iron content	10	0.5	mg/L	0.23	0.34	0.46
Coliform bacteria count	3,000	100	Num/cm^3	N.D.		
Trichloroethylene	0.3	0.15	mg/L	N.D.		
Tetrachloroethylene	0.1	0.05	mg/L	N.D.		

■ Water source : Jinjunamgang River

■ Drain destination : Yonghyeon Sea

TAIYO YUDEN (CHANGZHOU) CO., LTD.

■ Total energy consumption (Crude oil equivalent) : 18,468 kL/year

■ Total waste generated : 890 tons/year (recycling rate: 33.3 %)

■ Air emission :

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Boiler	Natural gas	Ringelmann smoke density	1	1	class	1
		Sulfur dioxide	35	35	mg/m^3N	N.D.
		Total suspended particulates	10	10	mg/m^3N	4.7
		NOx	50	50	mg/m^3N	32.5
Firing furnace	—	VOCs	60	60	mg/m^3N	9.1
		Sulfur dioxide	200	200	mg/m^3N	0.12
		Total suspended particulates	20	20	mg/m^3N	1.6
		NOx	200	200	mg/m^3N	N.D.

■ Water quality :

Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0～9.0	6.0～9.0	-	7	7.3	7.6
Chemical oxygen demand	500	500	mg/L	12.4	23.3	26.8
Suspended solids	400	400	mg/L	5	6.7	14
Ammonia nitrogen	45	45	mg/L	0.05	0.23	0.8
Phosphorus content	8	8	mg/L	0.07	0.2	0.24
Nitrogen content	70	70	mg/L	1.34	2.25	4.38
Total iron content	10	10	mg/L	0.03	0.18	0.41
Total aluminum content	2	2	mg/L	N.D.	0.04	0.1
Tin content	5	5	mg/L	N.D.		
Hydrogen chloride content	800	800	mg/L	347		
Copper content	2	2	mg/L	N.D.	0.03	0.08
Nickel content	0.5	0.5	mg/L	N.D.	0.01	0.06

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0～9.0	6.0～9.0	-	6.8	7.2	7.7
Chemical oxygen demand	500	500	mg/L	24	341	658[*1]
Phosphorus content	8	8	mg/L	0.46	3.11	5.76
Nitrogen content	70	70	mg/L	14.9	37	59.2
Ammonia and similar nitrogen compounds	45	45	mg/L	11.6	27.5	43.3
Suspended solids	400	400	mg/L	13	95.2	177.3
Anionic surfactant	20	20	mg/L	5.28		
Animal/Vegetable oils	100	100	mg/L	0.08	0.62	1.16

*1: Chemical oxygen demand exceeds the legal standard because of the temporary change in the number of workers.

■ Water source : Chan Jiang

■ Drain destination : Longzihe River

TAIYO YUDEN (GUANGDONG) CO., LTD.

■ Total energy consumption (Crude oil equivalent) : 32,035 kL/year
■ Total waste generated : 1,488 tons/year (recycling rate: 100 %)
■ Air emission :

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Boiler	Natural gas	Ringelmann smoke density	1	1	class	1
		Sulfur dioxide	35	35	mg/m^{3}N	23
		Total suspended particulates	10	10	mg/m^{3}N	6.6
		NOx	50	50	mg/m^{3}N	47
Generator	Kerosene	Ringelmann smoke density	1	1	class	0.5
		Sulfur dioxide	500	500	mg/m^{3}N	112
		Total suspended particulates	120	120	mg/m^{3}N	20
		NOx	120	120	mg/m^{3}N	114
Cafeteria	Natural gas	Oily smoke	2	2	ppm	1.3
Scrubber	-	Hydrogen chloride	15	15	mg/m^{3}N	5.38
		NOx	120	120	mg/m^{3}N	12
Regenerative Thermal Oxidizer (RTO)	Natural gas	VOCs	30	30	mg/m^{3}N	4.63
		NOx	120	120	mg/m^{3}N	ND
		Total suspended particulates	120	120	mg/m^{3}N	20.6
Firing furnace	-	VOCs	30	30	mg/m^{3}N	4.6

■ Water quality :
Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.5～9.0	6.5～9.0	-		7.4	
Biochemical oxygen demand	20	20	mg/L	1.4	4.1	5.5
Chemical oxygen demand	80	80	mg/L		22	
Suspended solids	30	30	mg/L	4	7.4	9
Ammonia nitrogen	10	10	mg/L		0.79	
Nitrogen content	20	20	mg/L	2.1	6	16.7
Phosphorus content	0.5	0.5	mg/L	0.02	0.06	0.18
Petroleum products content	2	2	mg/L	0.06	0.14	0.22
Fluorine content	10	10	mg/L	0.1	1.1	8.7
Cyanide content	0.2	0.2	mg/L		0.004	
Chromium content	0.5	0.5	mg/L		0.03	
Hexavalent chromium content	0.1	0.1	mg/L		0.004	
Nickel content	0.5	0.5	mg/L		0.02	
Cadmium content	0.01	0.01	mg/L		0.001	
Silver content	0.1	0.1	mg/L		0.02	
Lead content	0.1	0.1	mg/L		0.07	
Mercury content	0.05	0.05	mg/L		0.00012	
Copper content	0.5	0.5	mg/L		0.006	
Zinc content	1	1	mg/L	0.035	0.004	0.222
Iron content	2	2	mg/L	0.02	0.11	0.26
Aluminum content	2	2	mg/L		0.07	
TOC content	20	20	mg/L	1.2	4.8	10.2
Phosphorus content	0.5	0.5	mg/L		0.0003	
Anionic surfactant	5	5	mg/L	0.05	0.12	0.18

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0～9.0	6.0～9.0	-		7.8	
Biochemical oxygen demand	300	300	mg/L		26.2	
Chemical oxygen demand	500	500	mg/L		87	
Suspended solids	400	400	mg/L		56	
Animal/Vegetable oils content	100	100	mg/L		2.8	
Petroleum products content	20	20	mg/L		0.84	
Anionic surfactant	20	20	mg/L		2	
Total phosphorus	8	8	mg/L		2.2	

■ Water source : Dong River
■ Drain destination : Dong River

TAIYO YUDEN (PHILIPPINES), INC.

■ Total energy consumption (Crude oil equivalent) : 14,236 kL/year

■ Total waste generated : 999 tons/year (recycling rate: 81.1 %)

■ Air emission :

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Scrubber	-	Hydrogen sulfide	7	5.6	mg/m^3N	<0.139
		Nitrogen dioxide	500	400	mg/m^3N	<0.941
		Sulfur dioxide	200	160	mg/m^3N	N.D.

■ Water quality :

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0～9.0	6.6 ~ 8.4	-	6.1	7.3	9
Biochemical oxygen demand	100	80	mg/L	1	9.6	21
Chemical oxygen demand	200	160	mg/L	9	19.8	40
Suspended solids	100	80	mg/L	6	10.8	20
Oil & Grease	10	8	mg/L	<1		
Lead content	0.1	0.08	mg/L	0.007	0.03	0.04
Zinc content	1.5	1.2	mg/L	0.026	0.05	0.06
Nickel content	0.3	0.24	mg/L	0.06	0.16	0.28
Fluorine content	3	2.4	mg/L	0.02	0.05	0.07
Boron content	25	20	mg/L	0.65	0.8	1
Trichloroethylene	9	7.2	mg/L	<0.0003		
Arsenic content	0.04	0.032	mg/L	<0.01		
Chromium content	0.1	0.08	mg/L	0.004	0.008	0.015
Iron content	7.5	6	mg/L	0.25	1.85	3.35
Manganese content	4	3.2	mg/L	0.011	0.044	0.07
Mercury content	0.004	0.0032	mg/L	0.0002	0.0011	0.004
Phenol content	0.5	0.4	mg/L	<0.001		
Anionic surfactant	15	12	mg/L	0.38		
Cadmium content	0.01	0.008	mg/L	0.002	0.0028	0.003
Copper content	1	0.8	mg/L	0.002	0.024	0.06
Color	150	120	TCU	5	8.8	10

■ Water source : Groundwater Wells

■ Drain destination : Mactan Channel Sea

TAIYO YUDEN (SARAWAK) SDN.BHD.

■ Total energy consumption (Crude oil equivalent) : 45,344 kL/year

■ Total waste generated : 5,921 tons/year (recycling rate: 90.2 %)

■ Air emission :

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Scrubber	-	Hydrogen chloride	0.03	0.024	g/m^3N	0.0036
		Sulfuric acid	0.005	0.004	g/m^3N	0.0031
Boiler	LP gas	Dust Particulate	0.05	0.04	g/m^3N	0.02
		Dark Smoke	20	16	%	N.D.
Regenerative Thermal Oxidizer(RTO)	LP gas	NMVOC	150	120	mg/m^3N	22.1

■ Water quality :

Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Temperature	40	32	℃	27.1	28.4	30
Hydrogen ion concentration	5.5～9.0	5.85～8.56	-	7	7.6	8.6
Biochemical oxygen demand	50	40	mg/L	3	7.8	15
Chemical oxygen demand	200	160	mg/L	17	43	77
Suspended solids	100	80	mg/L	6	8.5	16
Zinc content	2	1.6	mg/L	0.1		
Copper content	1	0.8	mg/L	0.15	0.2	0.4
Nickel content	1	0.8	mg/L	0.22	0.37	0.53
Tin content	1	0.8	mg/L	0.4		
Soluble iron content	5	4	mg/L	0.44	0.98	1.59

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.5～9.0	5.85～8.56	-	7.1	7.7	8.4
Biochemical oxygen demand	50	4	mg/L	2	2.1	3.3
Chemical oxygen demand	200	160	mg/L	10	15.9	48
Suspended solids	100	80	mg/L	5		
Ammoniacal nitrogen	50	16	mg/L	0.6	1.3	3.1
Oil & Grease	20	8	mg/L	1		

■ Water source : Kitang River

■ Drain destination : Sarawak River

ELNA (MALAYSIA) SDN. BHD.

■ Total energy consumption (Crude oil equivalent) : 2,707 kL/year

■ Total waste generated : 167 tons/year (recycling rate: 100 %)

■ Air emission :

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Equipment exhaust	-	Particulate matter	150	150	g/m^3N	3.9

■ Water quality :

Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.5～9.0	6.0～8.5	-	7.3	7.4	7.5
Biochemical oxygen demand	50	35	mg/L	10	13	17
Chemical oxygen demand	200	180	mg/L	44	54	68
Suspended solids	100	60	mg/L	2	4	5
Zinc content	2	1.8	mg/L	0.1	0.2	0.3
Copper content	1	0.8	mg/L	0.05	0.1	0.1
Nickel content	1	0.8	mg/L	0.1		
Tin content	1	0.85	mg/L	0.5		
Boron content	4	3.5	mg/L	0.1		
Oil & Grease	10	8	mg/L	1		
Lead content	1	0.3	mg/L	0.1		
Iron content	5	4.5	mg/L	0.1	0.2	0.4

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Biochemical oxygen demand	100	80	mg/L	11	13	18
Chemical oxygen demand	300	240	mg/L	44	55	76
Suspended solids	120	96	mg/L	5	9	21
Ammoniacal nitrogen	80	64	mg/L	1.9	8.1	17

■ Water source : Muda River

■ Drain destination : Juru River

ELNA (THAILAND) CO., LTD.

■ Total energy consumption (Crude oil equivalent) : 2,341 kL/year

■ Total waste generated : 237 tons/year (recycling rate: 47.1 %)

■ Air emission :

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Experimental exhaust	-	Sulfuric acid	25	25	g/m^3N	0.16

■ Water quality :

Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Formaldehyde	1	0.9	-	N.D.		
Phenolic content	1	0.9	mg/L	N.D.		
Arsenic content	0.25	0.23	mg/L	0.0006		
Barium content	1	0.9	mg/L	0.07		
Cadmium content	0.03	0.027	mg/L	N.D.		
Hexavalent chromium content	0.25	0.23	mg/L	N.D.		
Trivalent chromium content	0.75	0.68	mg/L	N.D.		
Copper content	2	1.8	mg/L	0.001		
Cyanide content	0.2	0.18	mg/L	N.D.		
Lead content	0.2	0.18	mg/L	N.D.		
Manganese content	5	4.5	mg/L	0.02		
Mercury content	0.005	0.0045	mg/L	N.D.		
Nickel content	1	0.9	mg/L	0.005		
Selenium content	0.02	0.018	mg/L	N.D.		
Zinc content	5	4.5	mg/L	0.06		
Residual free chlorine content	1	0.9	mg/L	N.D.		
Sulfide content	1	0.9	mg/L	N.D.		
Amount of suspended solids	50	45	mg/L	N.D.		
Total dissolved solids	3,000	2,700	mg/L	464		

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.5～9.0	6.0～8.0	-	5.3	6.9	7.4
Biochemical oxygen demand	20	18	mg/L	2.4	7	22*1
Chemical oxygen demand	120	108	mg/L	9.5	21.2	44.4
Suspended solids	50	45	mg/L	2	6.9	18.5
Total kjeldahl Nitrogen	100	90	mg/L	0.1	2.1	8.5
Oil & Grease	5	4.5	mg/L	0.3	1.8	4.1

*1:Biochemical oxygen demand exceeds the legal standard because of the temporary change in the number of workers.

■ Water source : Groundwater Wells

■ Drain destination : Ping River