

Safety & Environmental Report 2024

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 FY2023. It was measured between April 1st, 2023 and March 31, 2024.

Notes on Standard Values

- The standard value for air emission is set to the strictest standard value referring 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 \leq legal standard)

TAIYO YUDEN CO., LTD. Takasaki Global Center

- Total energy consumption (Crude oil equivalent) : 318 kL/year
- Total waste generated : 40 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) : 7,944 kL/year
- Total waste generated : 230 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	NOx	950	950	ppm	660
		SOx	17.5	8	K value	0.16
		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	-	7.2	7.5	7.7
Biochemical oxygen demand	25	15	mg/L	<1	1.75	3
Suspended solids	50	10	mg/L	<1	1	1
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	0.025	0.04
Soluble manganese content	10	0.1	mg/L	<0.01	0.016	0.04
Chromium content	2	0.02	mg/L	<0.01		
Nitrogen content	120	12	mg/L	3.7	4.8	6
Phosphorus content	16	0.2	mg/L	<0.05	0.06	0.07

- PRTR restricted substances In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Vanadium compound	0	0	0
Xylene	0.02	0	0

- Water source : Spring Water
- Drain destination : Karasu River

TAIYO YUDEN CO., LTD. Nakanojo Plant

- Total energy consumption (Crude oil equivalent) : 2,640 kL/year
- Total waste generated : 192 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	0.01
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	-	7.5	7.9	8.1
Biochemical oxygen demand	600	132	mg/L	2	48	110
Suspended solids	600	18	mg/L	2	5.4	15
N-hexane extract (mineral content)	5	1	mg/L	1		
N-hexane extract (animal/plant content)	30	6	mg/L	<1	2.3	5
Copper content	3	0.12	mg/L	0.01	0.038	0.08
Zinc content	2	0.39	mg/L	0.01	0.11	0.33
Soluble iron content	10	0.06	mg/L	0.01	0.02	0.05
Soluble manganese content	10	0.01	mg/L	<0.01		
Boron and its compounds	10	0.07	mg/L	0.02	0.034	0.06

- PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Nickel compound	0	0	5.82

- Water source : Spring Water
- Drain destination : Momose River(Via Sewage)

TAIYO YUDEN CO., LTD. Tamamura Plant

- Total energy consumption (Crude oil equivalent) : 24,747 kL/year
- Total waste generated : 1,521 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	0.16	g/m ³ N	0.066

- 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	-	7.4	7.8	8.1
Biochemical oxygen demand	25	13	mg/L	<1	1.3	3
Suspended solids	50	30	mg/L	<1	1.3	3
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	<0.01		
Zinc content	10	0.5	mg/L	0.12		
Soluble iron content	2	0.12	mg/L	0.03		
Soluble manganese content	8	0.5	mg/L	0.03		
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	3.4	6.7	9.8
Phosphorus content	16	5	mg/L	0.8	1.6	2.9
Lead and its compounds	0.2	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		

- PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Toluene	8.77	0	8.04
Nickel	0.01	0	8.3
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) : 1,807 kL/year
- Total waste generated : 31 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	Town gas	Soot and dust	0.25	0.01	g/m ³ N	< 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	-	7.7	7.9	8
Biochemical oxygen demand	25	14	mg/L	1		
Suspended solids	50	20	mg/L	1	1.4	3
N-hexane extract (animal/plant content)	30	1.2	mg/L	1		
Soluble iron content	10	10	mg/L	0	0.002	0.02
Soluble manganese content	10	10	mg/L	0		
Coliform bacteria count	3,000	1,500	Num/cm ³	30	153	1,500
Nitrogen content	120	16	mg/L	0.3	3.5	12
Phosphorus content	16	2.7	mg/L	0.3	0.7	2.1

- 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) : 1,590 kL/year
- Total waste generated : 102 tons/year (recycling rate: 100 %)
- Air emission : **Air Pollution Control Act**

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Generator (Diesel)	Heavy fuel oil	NOx	950	900	ppm	630
		SOx	8	2.7	K value	0.84
		Soot and dust	0.1	0.06	g/m ³ N	0.03

- 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	-	7.1	7.6	7.8
Biochemical oxygen demand	25	18	mg/L	3	5.6	7
Suspended solids	50	30	mg/L	3	10.3	30
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	0.03		
Soluble iron content	10	0.1	mg/L	0.04		
Soluble manganese content	10	0.1	mg/L	0.02		
Chromium content	2	0.1	mg/L	0.01		
Coliform bacteria count	3,000	500	Num/cm ³	30	32	54
Nitrogen content	120	80	mg/L	24	40	52
Phosphorus content	16	12	mg/L	4	5.2	6.3
Boron and its compounds	10	0.2	mg/L	0.01		
Fluorine and its compounds	8	0.2	mg/L	0.1		
Ammonia and its compounds, Nitrous and Nitric acid compound	100	60	mg/L	18.3		

- 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) : 2,881 kL/year
- Total waste generated : 1,223 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	-	6.3	6.8	7.4
Biochemical oxygen demand	25	15	mg/L	3	6	13
Suspended solids	50	36	mg/L	2	13	30
N-hexane extract (animal/plant content)	5	1	mg/L	<1		
Copper content	3	2.5	mg/L	0.3	0.9	2.1
Zinc content	2	0.13	mg/L	<0.1		
Soluble iron content	10	1.3	mg/L	0.1	0.6	1.1
Soluble manganese content	10	0.62	mg/L	0.1	0.4	0.5
Chromium content	2	0.01	mg/L	<0.01		
Coliform bacteria count	3,000	150	Num/cm ³	<30	38	130
Nitrogen content	60	51	mg/L	33	40	48
Phosphorus content	8	8	mg/L	6	8	13
Formaldehyde	10	1	mg/L	<1		
Phenol	1	0.1	mg/L	<0.1		
Boron and its compounds	10	2.9	mg/L	1.3	1.9	2.6
Fluorine and its compounds	8	0.5	mg/L	0.1	0.2	0.4
Ammonia (Sum of Ammonia, Nitric & Nitrous acid)	100	28.7	mg/L	14.5	19.5	23.7

- PRTR restricted substances In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Nickel	0.13	0	8.6
Nickel compound	0.77	5.8	0

- Water source : Kanna River
- Drain destination : Ayu River

TAIYO YUDEN TECHNO SOLUTIONS CO., LTD.

- Total energy consumption (Crude oil equivalent) : 713 kL/year
- Total waste generated : 32 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 In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Tritolyl phosphate	0	0	0.11

- Water source : Tone River
- Drain destination : Karasu River

FUKUSHIMA TAIYO YUDEN CO., LTD.

- Total energy consumption (Crude oil equivalent) : 4,894 kL/year
- Total waste generated : 373 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	6.5~7.9	-	6.8	7.2	7.7
Biochemical oxygen demand	20	11.7	mg/L	1	2.1	6.6
Suspended solids	50	11.5	mg/L	1	1.3	2.8
N-hexane extract (animal/plant content)	10	0.5	mg/L	0.5		
Phenolic content	1	0.03	mg/L	<0.02		
Copper content	2	0.1	mg/L	0.01	0.02	0.04
Zinc content	2	0.59	mg/L	0.1	0.4	0.9
Soluble iron content	10	0.3	mg/L	0.07	0.1	0.3
Soluble manganese content	10	0.05	mg/L	0.01	0.024	0.04
Chromium content	2	0.06	mg/L	0.1		
Coliform bacteria count	3000	648	Num/cm ³	0	35	280
Nitrogen content	120	28.4	mg/L	3	8	28
Phosphorus content	16	3.6	mg/L	0.02	0.6	3.5
Boron and its compounds	10	1.48	mg/L	0.8	1.1	1.4
Fluorine and its compounds	8	0.05	mg/L	0.1		

■ PRTR restricted substances In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Silver and its water-soluble compounds	3.03	0.25	4.49
Boron compound	1.84	0	0

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

NIIGATA TAIYO YUDEN CO., LTD.

- Total energy consumption (Crude oil equivalent) : 50,082 kL/year
- Total waste generated : 6,465 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	0.09

- 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	-	6.8	7.4	7.9
Biochemical oxygen demand	160	24	mg/L	2.3	5.7	14.0
Suspended solids	160	20	mg/L	2	13	170
N-hexane extract (mineral content)	5	1	mg/L	0.5		
Coliform bacteria count	3,000	33	Num/cm ³	0	0.3	4
Nitrogen content	120	6	mg/L	1.1	2.4	7.2
Phosphorus content	16	1.3	mg/L	0.2	0.5	2.0
Lead and its compounds	0.1	0.01	mg/L	0.01		
Arsenic and its compounds	0.1	0.01	mg/L	0.01		
Copper content	3	0.2	mg/L	0.03	0.05	0.07
Zinc content	2	1.2	mg/L	0.10	0.13	0.16
Soluble iron content	10	0.41	mg/L	0.5		
Soluble manganese content	10	0.05	mg/L	0.020	0.025	0.030
Chromium content	2	0.01	mg/L	0.01		
Fluorine and its compounds	8	0.6	mg/L	0.5		

- PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Toluene	16.2	16.04	19.61
Nickel	0	2.57	65.83
Nickel compound	0	0.11	2.92

- Water source : Kakizaki River
- Drain destination : Hokura River

WAKAYAMA TAIYO YUDEN CO., LTD.

- Total energy consumption (Crude oil equivalent) : 5,089 kL/year
- Total waste generated : 238 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	-	6.2	6.6	7.1
Biochemical oxygen demand	160	13.1	mg/L	0.7	4.1	11
Chemical oxygen demand	160	28.2	mg/L	2.8	7.0	24
Suspended solids	200	17.8	mg/L	1	5.4	15
N-hexane extract (mineral content)	5	0.5	mg/L	0.5		
N-hexane extract (animal/plant content)	30	2.2	mg/L	0.5	0.8	1.9
Phenolic content	5	0.5	mg/L	0.5		
Copper content	3	0.3	mg/L	0.3		
Zinc content	2	0.2	mg/L	0.2		
Soluble iron content	10	0.1	mg/L	0.1		
Soluble manganese content	10	0.1	mg/L	0.1		
Chromium content	2	0.2	mg/L	0.2		
Coliform bacteria count	3,000	31	Num/cm ³	1	9	26
Nitrogen content	120	16.8	mg/L	0.2	1.8	14
Phosphorus content	16	0.02	mg/L	0.1	0.1	0.2
Boron and its compounds	10	0.1	mg/L	0.1		
Fluorine and its compounds	8	0.8	mg/L	0.8		
Ammonia (Sum of Ammonia, Nitric & Nitrous acid)	100	6.5	mg/L	0.1	0.8	5.4
Nickel	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	4.74	0
Toluene	2.01	5.67	0
Chromium and chromium(III) compounds	0	1.15	0

- Water source : Kirime River
- Drain destination : Inami River

TAIYO YUDEN Mobile Technology Co., Ltd.

- Total energy consumption (Crude oil equivalent) : 13,406 kL/year
- Total waste generated : 159 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	35

- 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	-	6.8	7.1	7.4
Biochemical oxygen demand	300	240	mg/L	45	69	95
Suspended solids	300	120	mg/L	15	27	37
Copper content	3	0.3	mg/L	0.05	0.07	0.16
Nitrogen content	120	102	mg/L	14	18	33
Phosphorus content	16	6	mg/L	0.3	0.8	1.2
Boron and its compounds	10	2	mg/L	0.1		
Fluorine and its compounds	8	5.5	mg/L	0.7	0.9	1.1

- 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	-	6.9	7.1	7.4
Biochemical oxygen demand	600	20	mg/L	1.0	1.5	3.3
Chemical oxygen demand	160	160	mg/L	1.0	1.6	2.8
Suspended solids	600	320	mg/L	2.3	2.9	3.2
N-hexane extract (mineral content)	5	1.2	mg/L	<0.2		
Nitrogen content	240	30	mg/L	14.0	18.5	23.0
Phosphorus content	32	1	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) : 3,803 kL/year
- Total waste generated : 932 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	-	7.60	7.65	7.70
Biochemical oxygen demand	40	40	mg/L	2.7	3.2	3.7
Chemical oxygen demand	40	40	mg/L	11.0	11.6	12.1
Suspended solids	70	70	mg/L	<1		
N-hexane extract (mineral content)	1	1	mg/L	0.5	0.8	1.0

- 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	-	6.9	8.0	8.7
Biochemical oxygen demand	600	300	mg/L	5	119	230
Suspended solids	600	100	mg/L	1	26	78
N-hexane extract (mineral content)	5	2	mg/L	0.5	0.6	1.0
N-hexane extract (animal/plant content)	30	30	mg/L	0.8	11.5	28
Iodine consumption	220	50	mg/L	0.5	9.5	32

- 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) : 45,575 kL/year
- Total waste generated : 6,388 tons/year (recycling rate: 86.5 %)
- Air emission :

Equipment	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Scrubber	Soot and dust	30	5.9	g/m ³ N	1.5
	SOx	200	6.7	ppm	1.0
	Ammonia	30	3.0	ppm	1.2
	Nickel	2	1.0	g/m ³ N	0
	Copper	4	0.2	g/m ³ N	0
	Total Hydrocarbon (THC)	200	55	ppm	5.7
RTO	Toluene	30	0.8	ppm	0
	Nickel	2	1	g/m ³ N	0
	Total Hydrocarbon (THC)	110	45	ppm	6.9
Drying furnace	Soot and dust	30	4.5	g/m ³ N	1.6
Bag filter	Soot and dust	30	4.5	g/m ³ N	3.0

- Water quality :

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8~8.6	6.0~8.0	-	6.7	7.6	8.0
Biochemical oxygen demand	300	34	mg/L	2.0	15.4	33.0
Total organic carbon	170	10	mg/L	2.1	4.4	9.0
Suspended solids	300	25	mg/L	5.2	14.9	24.4
N-hexane extract (mineral content)	5	1.1	mg/L	0		
N-hexane extract (animal/plant content)	30	1.1	mg/L	0.5	0.7	1
Copper content	3	1	mg/L	0	0.03	0.11
Fluorine and its compounds	15	2	mg/L	0		
Nitrogen content	60	42	mg/L	25.9	34.6	40.0
Phosphorus content	20	1.5	mg/L	0.05	0.09	0.21
Anionic surfactant	5	0.5	mg/L	0	0.08	0.13
Tin	5	0.5	mg/L	0		
Nickel	3	1.5	mg/L	0	0.02	0.65
Chromium content	2	1	mg/L	<0.007		
Zinc content	5	0.3	mg/L	0.002		
Phenol	3	1.5	mg/L	<0.007		
Soluble manganese content	10	0.2	mg/L	0.009		
Soluble iron content	10	0.5	mg/L	0.038		
Coliform bacteria count	3,000	100	Num/cm ³	50		
Trichloroethylene	0.3	0.15	mg/L	<0.001		
Tetrachloroethylene	0.1	0.05	mg/L	<0.001		

- Water source : Jinjunamgang River
- Drain destination : Yonghyeon Sea

TAIYO YUDEN (CHANGZHOU) CO., LTD.

- Total energy consumption (Crude oil equivalent) : 10,949 kL/year
- Total waste generated : 155 tons/year (recycling rate: 17.7 %)
- 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	ND
		Total suspended particulates	10	10	mg/m ³ N	4.7
		NOx	50	50	mg/m ³ N	12.6

- Water quality :
- Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Ammonia and similar nitrogen compounds	45	8	mg/L	0.05	0.24	0.80
Total iron	10	10	mg/L	0.09	0.25	0.41
total aluminium	2	0.3	mg/L	0.01	0.05	0.06
Suspended solids	400	30	mg/L	5	7	14
Tin	5	5	mg/L	ND		
chloride	800	800	mg/L	347		

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0~9.0	6.0~9.0	-	7.7		
Biochemical oxygen demand	300	300	mg/L	11		
Chemical oxygen demand	500	500	mg/L	24		
Phosphorus content	8	8	mg/L	0.5		
Nitrogen content	70	70	mg/L	15		
Ammonia and similar nitrogen compounds	45	45	mg/L	12		
Suspended solids	400	400	mg/L	13		
Anionic surfactant	20	20	mg/L	ND		
Animal/Vegetable oils	100	100	mg/L	0.08		

- Water source : Chan Jiang
- Drain destination : Longzihe River

TAIYO YUDEN (GUANGDONG) CO., LTD.

- Total energy consumption (Crude oil equivalent) : 33,530 kL/year
- Total waste generated : 1,298 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	0.5
		Sulfur dioxide	50	50	mg/m ³ N	6
		Total suspended particulates	20	20	mg/m ³ N	6.5
		NOx	150	150	mg/m ³ N	70
Generator	Kerosene	Ringelmann smoke density	1	1	class	0.5
		Sulfur dioxide	550	550	mg/m ³ N	ND
		Total suspended particulates	120	120	mg/m ³ N	47
		NOx	240	240	mg/m ³ N	97
Cafeteria	Natural gas	Oily smoke	2	2	ppm	1.3
Scrubber	-	Hydrogen chloride	30	30	mg/m ³ N	2
		NOx	120	120	mg/m ³ N	2
RTO	Natural gas	VOCs	30	30	mg/m ³ N	9
		Methanol	190	190	mg/m ³ N	8
		Toluene	20	20	mg/m ³ N	7
		Xylene	20	20	mg/m ³ N	0.3
		Nitrogen oxides	120	120	mg/m ³ N	6
		Sulfur dioxide	550	550	mg/m ³ N	10
		Particulate matter	120	120	mg/m ³ N	23
		Benzene	1	1	mg/m ³ N	0.2
Firing furnace	-	VOCs	120	120	mg/m ³ N	11
		Particulate matter	120	120	mg/m ³ N	24

- 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	-	7.5		
Chemical oxygen demand	80	80	mg/L	20		
Suspended solids	30	30	mg/L	6	10	13
Ammonia and similar nitrogen compounds	10	10	mg/L	0.7		
Zinc content	1	1	mg/L	0.006	0.024	0.041
Nitrogen content	20	20	mg/L	1.7	7.9	15.9
Copper content	0.5	0.5	mg/L	ND		
Nickel	0.5	0.5	mg/L	0.44		

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0~9.0	6.0~9.0	-	7.3	7.35	7.4
Biochemical oxygen demand	300	300	mg/L	114	119	124
Chemical oxygen demand	500	500	mg/L	250	254	257
Suspended solids	400	400	mg/L	52	61	69
Animal/Vegetable oils	100	100	mg/L	0.3	2.2	4.1

- Water source : Dong River
- Drain destination : Dong River

TAIYO YUDEN (PHILIPPINES), INC.

- Total energy consumption (Crude oil equivalent) : 15,107 kL/year
- Total waste generated : 920 tons/year (recycling rate: 82.7 %)
- Air emission : Measurement was not performed since no facility was subject to legal regulations.
- Water quality :

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0~9.0	6.6 ~ 8.4	-	6.6	7.5	8.3
Biochemical oxygen demand	100	80	mg/L	5	15	30
Chemical oxygen demand	200	160	mg/L	11	32	64
Suspended solids	100	80	mg/L	4	11	24
Oil & Grease	10	8	mg/L	<0.01	<1	<1
Lead and its compounds	0.1	0.08	mg/L	<0.007		
Zinc content	1.5	1.2	mg/L	0.007	0.045	0.077
Nickel	0.3	0.24	mg/L	0.07	0.18	0.36
Fluorine and its compounds	3	2.4	mg/L	0.04	0.06	0.15
Boron and its compounds	20	16	mg/L	1.44		
Trichloroethylene	9	7.2	mg/L	<0.0003		
Arsenic and its compounds	0.04	0.032	mg/L	<0.01		
Chromium content	0.1	0.08	mg/L	<0.01		
Soluble iron content	7.5	6	mg/L	0.22	2.27	4.66
Soluble manganese content	4	3.2	mg/L	0.013	0.17	1.59
Mercury	0.004	0.003	mg/L	0.061		
Phenol	0.5	0.4	mg/L	<0.001		
Anionic surfactant	15	12	mg/L	0.04		

- Water source : Groundwater Wells
- Drain destination : Mactan Channel Sea

TAIYO YUDEN (SARAWAK) SDN.BHD.

- Total energy consumption (Crude oil equivalent) : 41,751 kL/year
- Total waste generated : 4,880 tons/year (recycling rate: 86.2 %)
- Air emission :

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Scrubber	-	Hydrogen chloride	0.03	0.024	g/m ³ N	0.005
		Sulfuric acid	0.005	0.004	g/m ³ N	0.001
Boiler	LP gas	Dust Particulate	0.05	0.04	g/m ³ N	0.02
		Dark Smoke	20	16	%	0
RTO	LP gas	NMVOG	150	120	mg/m ³ N	24.5

- Water quality :

Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Temperature	40	31	°C	28	29	30
Hydrogen ion concentration	5.5~9.0	6.8~8.56	-	7.2	7.7	8.3
Biochemical oxygen demand	50	40	mg/L	7	13	18
Chemical oxygen demand	200	160	mg/L	33	63	89
Suspended solids	100	80	mg/L	5	7	18
Zinc content	2	0.48	mg/L	0.10	0.11	0.20
Copper content	1	0.82	mg/L	0.14	0.28	0.60
Nickel	1	0.96	mg/L	0.20	0.44	0.88
Tin	1	0.76	mg/L	0.40	0.42	0.63
Soluble iron content	5	4.44	mg/L	0.4	1.2	2.9

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.5~9.0	7.08~8.98	-	7.1	7.8	8.4
Biochemical oxygen demand	50	2.4	mg/L	2.0	2.04	2.4
Chemical oxygen demand	200	23.3	mg/L	10	13	22
Suspended solids	100	5.0	mg/L	5		
Ammonia Nitrogen	50	3.1	mg/L	0.7	0.9	1.2
Oil & Grease	20	1.2	mg/L	1.0		

- Water source : Kitang River
- Drain destination : Sarawak River

ELNA (MALAYSIA) SDN. BHD.

- Total energy consumption (Crude oil equivalent) : 3,087 kL/year
- Total waste generated : 227 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	100	g/m ³ N	4.9

- 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	7.38	7.4
Biochemical oxygen demand	50	40	mg/L	10	11	14
Chemical oxygen demand	200	160	mg/L	40	49	60
Suspended solids	100	80	mg/L	3	4	6
Zinc content	2	1.6	mg/L	0.1	0.2	0.2
Copper content	1	0.8	mg/L	0.05	0.09	0.17
Nickel	1	0.8	mg/L	0.1		
Tin	1	0.8	mg/L	0.5		
Boron and its compounds	4	3.2	mg/L	0.1	0.1	0.2
Oil & Grease	10	8	mg/L	1		
Lead and its compounds	1	0.4	mg/L	0.1		
Soluble iron content	5	4	mg/L	0.2	0.2	0.3

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Biochemical oxygen demand	100	80	mg/L	8	10	13
Chemical oxygen demand	300	240	mg/L	32	42	52
Suspended solids	120	96	mg/L	4	7	10
Ammoniacal nitrogen	80	64	mg/L	1.3	4.3	11

- Water source : Muda River
- Drain destination : Juru River

ELNA (THAILAND) CO., LTD.

- Total energy consumption (Crude oil equivalent) : 2,598 kL/year
- Total waste generated : 307 tons/year (recycling rate: 40.8 %)
- Air emission : Measurement was not performed since no facility was subject to legal regulations.
- Water quality :

Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.5~9.0	6.0~8.0	-	7.0		
Total Dissolved Solids	3,000	2,700	mg/L	412		
Suspended solids	50	45	mg/L	11.8		
Biochemical oxygen demand	20	18	mg/L	4.1		
Chemical oxygen demand	120	108	mg/L	28.2		
Sulfide as H ₂ S	1	0.9	mg/L	< 0.5		
Cyanide as HCN	0.2	0.18	mg/L	ND		
Oil & Grease	5	4.5	mg/L	3.2		
Formaldehyde	1	0.9	mg/L	ND		
Phenol	1	0.9	mg/L	ND		
Free chlorine	1	0.9	mg/L	< 0.1		
Total kjeldahl Nitrogen	100	90	mg/L	3.3		
Zinc content	5	4.5	mg/L	0.06		
Chromium hexavalent	0.25	0.23	mg/L	ND		
Chromium trivalent	0.75	0.68	mg/L	< 0.01		
Arsenic and its compounds	0.25	0.23	mg/L	< 0.0005		
Copper content	2	1.8	mg/L	0.001		
Mercury	0.005	0.0045	mg/L	ND		
Cadmium	0.03	0.027	mg/L	ND		
Barium	1	0.9	mg/L	0.04		
Selenium	0.02	0.018	mg/L	ND		
Lead and its compounds	0.2	0.18	mg/L	ND		
Nickel	1	0.9	mg/L	0.002		
Soluble manganese content	5	4.5	mg/L	0.4		

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.5~9.0	6.0~8.0	-	6.4	7	7.8
Biochemical oxygen demand	20	18	mg/L	1.8	4.1	6.3
Chemical oxygen demand	120	108	mg/L	5.8	28.1	115
Suspended solids	50	45	mg/L	4	11.8	22
Nitrogen content	100	90	mg/L	0.3	3.3	10
Oil & Grease	5	4.5	mg/L	0.7	3.2	5.2 ^{*1}

*1: Oil & Grease exceeds the legal standard because of the temporary change in the number of workers.

- Water source : Groundwater Wells
- Drain destination : Ping River