

Safety & Environmental Report 2020

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 FY2019. It was measured between April 1st, 2019 and March 31, 2020.

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) : 380 kL/year
- Total waste generated : 66 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. Yawatabara Plant

- Total energy consumption (Crude oil equivalent) : 256 kL/year
- Total waste generated : 110 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	6.4~8.3	-	7.3	7.7	8.0
Biochemical oxygen demand	25	14	mg/L	1.0	2.5	4.0
Suspended solids	50	12	mg/L	1.0	2.9	10
N-hexane extract (animal/plant content)	30	1.2	mg/L	1.0		
Coliform bacteria count	3,000	1,500	Num/cm ³	30	31	40
Nitrogen content	120	16	mg/L	0.2	3.0	5.6
Phosphorus content	16	2.7	mg/L	0.2	0.7	2.5

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

TAIYO YUDEN CO., LTD. Tamamura Plant

- Total energy consumption (Crude oil equivalent) : 26,754 kL/year
- Total waste generated : 2,089 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	0.052

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

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
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	0.3	mg/L	0.1		
Hydrogen ion concentration	5.8~8.6	6.9~8.0	-	7.5	7.6	7.7
Biochemical oxygen demand	25	13	mg/L	2.0	5.3	12
Suspended solids	50	30	mg/L	1.0	1.3	2.0
N-hexane extract (mineral content)	5	1.0	mg/L	<1		
N-hexane extract (animal/plant content)	30	1.0	mg/L			
Copper content	3	0.03	mg/L	0.02		
Zinc content	2	0.5	mg/L	0.06		
Soluble iron content	10	0.1	mg/L	0.06		
Soluble manganese content	10	0.5	mg/L	0.1		
Chromium content	2	0.01	mg/L	<0.01		
Coliform bacteria count	3,000	1,400	Num/cm ³	<30		
Nitrogen content	120	18	mg/L	1.6	4.7	18
Phosphorus content	16	5.0	mg/L	0.6	1.4	4.2

- PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Toluene	13	0	12
Nickel	0.03	0	23
Methylnaphthalene	0.1	0	0

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

TAIYO YUDEN CO., LTD. Haruna Plant

- Total energy consumption (Crude oil equivalent) : 8,068 kL/year
- Total waste generated : 387 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	760
		SOx	8.0	8.0	K value	0.1
		Soot and dust	0.1	0.1	g/m ³ N	0.02

- 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	-	6.6	7.5	7.8
Biochemical oxygen demand	25	15	mg/L	1.0	3.0	5.0
Suspended solids	50	20	mg/L	1.0	2.0	3.0
N-hexane extract (mineral content)	5	2.0	mg/L	1.0		
Copper content	3	0.1	mg/L	0.01		
Zinc content	2	0.5	mg/L	0.01		
Soluble iron content	10	0.1	mg/L	0.01		
Soluble manganese content	10	0.1	mg/L	0.01	0.01	0.03
Chromium content	2	0.02	mg/L	0.01		
Nitrogen content	120	15	mg/L	3.3	5.0	6.0
Phosphorus content	16	0.1	mg/L	0.05		

- PRTR restricted substances In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Vanadium compound	0	0	0
Manganese and its compounds	0	0	0

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

TAIYO YUDEN CO., LTD. Nakanojo Plant

- Total energy consumption (Crude oil equivalent) : 4,223 kL/year
- Total waste generated : 353 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.
Drying furnace	Kerosene	NOx	230	35	ppm	18
		Soot and dust	0.2	0.005	g/m ³ N	<0.002
		Sox	8.0	0.1	K value	<0.02
Firing furnace (Electricity)		Soot and dust	0.25	0.06	g/m ³ N	0.006
Firing furnace	LP gas	NOx	180	35	ppm	34
		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.
Boron and its compounds	10	8.5	mg/L	0.02	0.05	0.2
Hydrogen ion concentration	5.0~9.0	5.0~8.1	-	6.9	7.5	8.0
Biochemical oxygen demand	600	124	mg/L	9.0	72	130
Suspended solids	600	31	mg/L	3.0	10	20
N-hexane extract (mineral content)	5	3.0	mg/L	1.0	1.5	3.0
N-hexane extract (animal/plant content)	30	3.0	mg/L			
Copper content	3	0.4	mg/L	0.01	0.05	0.2
Zinc content	2	0.7	mg/L	0.02	0.2	0.74
Soluble iron content	10	0.3	mg/L	0.01	0.01	0.02
Soluble manganese content	10	0.3	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	0	0.1
Nickel compound	0	0	18

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

TAIYO YUDEN CO., LTD. R&D Center

- Total energy consumption (Crude oil equivalent) : 1,511 kL/year
- Total waste generated : 109 tons/year (recycling rate: 100 %)
- Air emission : **Air Pollution Control Act**

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Diesel engine	Heavy fuel oil	NOx	950	900	ppm	564
		SOx	8	2.7	K value	1.0
		Soot and dust	0.1	0.06	g/m ³ N	0.02

- Water quality : **Pollution Control Agreement**

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Boron and its compounds	10	0.2	mg/L	0.02		
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		
Hydrogen ion concentration	5.8~8.6	6.0~8.4	-	7.0	7.5	7.7
Biochemical oxygen demand	25	18	mg/L	5.0	7.1	13
Suspended solids	50	30	mg/L	1.0	2.5	10
N-hexane extract (animal/plant content)	30	10	mg/L	1.0		
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	0.02		
Soluble iron content	10	0.1	mg/L	0.06		
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		
Nitrogen content	120	80	mg/L	21	32	43
Phosphorus content	16	12	mg/L	1.6	4.5	6.6

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

TAIYO YUDEN TECHNO SOLUTIONS CO., LTD.

- Total energy consumption (Crude oil equivalent) : 1,602 kL/year
- Total waste generated : 82 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

Kankyo Assist Co., Ltd.

- Total energy consumption (Crude oil equivalent) : 31 kL/year
- Total waste generated : 3.6 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.

TAIYO YUDEN ENERGY DEVICE CO., LTD.

- Total energy consumption (Crude oil equivalent) : 948 kL/year
- Total waste generated : 55 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 : Tone River(Via Sewage)

TAIYO YUDEN CHEMICAL TECHNOLOGY CO., LTD.

- Total energy consumption (Crude oil equivalent) : 2,624 kL/year
- Total waste generated : 1,480 tons/year (recycling rate: 100 %)

<<Head Office / Main Plant>> -> Fujioka Plant in next page

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

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Boron and its compounds	10	4.0	mg/L	0.03		
Fluorine and its compounds	8	4.0	mg/L	<0.1		
Ammonia (Sum of Ammonia, Nitric & Nitrous acid)	100	30	mg/L	21		
Hydrogen ion concentration	5.8~8.6	6.2~8.2	-	5.8	7.0	7.4
Biochemical oxygen demand	25	11	mg/L	4.0	9.6	24
Suspended solids	50	9.0	mg/L	3.0	10	23
N-hexane extract (animal/plant content)	5	4.0	mg/L	<1.0		
Phenolic content	1	0.5	mg/L	<0.1		
Copper content	3	0.1	mg/L	<0.01		
Zinc content	2	1.0	mg/L	<0.01		
Soluble iron content	10	0.1	mg/L	0.01		
Soluble manganese content	10	3.0	mg/L	<0.01		
Coliform bacteria count	3,000	330	Num/cm ³	30	602	2,700
Nitrogen content	60	50	mg/L	23	37	63 *1
Phosphorus content	8	6.0	mg/L	0.4	0.9	1.5
Formaldehyde	10	2.0	mg/L	<1.0		

*1: The nitrogen content 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
copper salt(water-soluble, except complex salts)	0.01	0.2	0.1
Nickel	0.1	0	8.3
Nickel compound	0.6	4.5	0
Boron compound	0.6	0.7	0

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

<<Fujioka Plant>>

■ 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.
Boron and its compounds	10	1.0	mg/L	0.3	0.3	0.5
Fluorine and its compounds	8	6.0	mg/L	0.7	1.1	1.7
Ammonia (Sum of Ammonia, Nitric & Nitrous acid)	100	30	mg/L	0.6	2.2	3.4
Hydrogen ion concentration	5.8~8.6	6.2~8.3	-	6.8	7.2	7.6
Biochemical oxygen demand	25	7.0	mg/L	1.0	2.6	5.0
Suspended solids	50	6.0	mg/L	1.0	1.2	3.0
N-hexane extract (animal/plant content)	5	1.0	mg/L	<1.0		
Copper content	3	0.02	mg/L	<0.01		
Zinc content	2	0.05	mg/L	<0.01		
Soluble iron content	10	0.3	mg/L	0.2	0.3	0.3
Soluble manganese content	10	0.1	mg/L	<0.01		
Chromium content	2	0.1	mg/L	<0.01		
Coliform bacteria count	1,000	400	Num/cm ³	30	31	37
Nitrogen content	60	18	mg/L	2.6	4.4	6.4
Phosphorus content	8	2.0	mg/L	<0.05		
Formaldehyde	10	1.0	mg/L	<1.0		
Phenol	1	0.2	mg/L	<0.1		

■ PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Ferric Chloride	0.03	23	0

■ Water source : Kanna River

■ Drain destination : Ayu River

FUKUSHIMA TAIYO YUDEN CO., LTD.

- Total energy consumption (Crude oil equivalent) : 3,886 kL/year
- Total waste generated : 590 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.
Boron and its compounds	10	1.48	mg/L	0.03	0.8	1.5
Fluorine and its compounds	8	0.05	mg/L	<0.05		
Hydrogen ion concentration	5.8~8.6	6.5~7.9	-	6.7	7.2	7.7
Biochemical oxygen demand	20	5.8	mg/L	1.0	2.1	10
Suspended solids	50	1.9	mg/L	1.0	1.7	6.6
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	0.04	mg/L	0.02	0.03	0.03
Zinc content	2	0.9	mg/L	0.05	0.1	0.7
Soluble iron content	10	0.7	mg/L	0.05	0.2	0.4
Soluble manganese content	10	0.04	mg/L	<0.03		
Chromium content	2	0.05	mg/L	<0.05		
Coliform bacteria count	3,000	648	Num/cm ³	0	45	400
Nitrogen content	120	19	mg/L	0.3	6.4	18
Phosphorus content	16	2.8	mg/L	0.02	0.3	2.5

■ PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Silver and its water-soluble compounds	0	0.3	3.0
Chromium and chromium(III) compounds	0	0.1	0
Boron compound	0	0.6	0

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

WAKAYAMA TAIYO YUDEN CO., LTD.

- Total energy consumption (Crude oil equivalent) : 3,970 kL/year
- Total waste generated : 172 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.
Boron and its compounds	10	3.1	mg/L	0.1	0.4	0.7
Fluorine and its compounds	8	1.0	mg/L	0.8		
Ammonia	100	23	mg/L	0.1	3.4	7.2
Hydrogen ion concentration	5.8~8.6	6.5~7.9	-	6.5	6.9	7.6
Biochemical oxygen demand	160	37	mg/L	3.1	6.9	12
Chemical oxygen demand	160	49	mg/L	6.1	12	26
Suspended solids	200	71	mg/L	1.0	11	46
N-hexane extract (mineral content)	5	0.5	mg/L	0.5		
N-hexane extract (animal/plant content)	30	2.6	mg/L	0.5	1.1	1.7
Phenolic content	5	1.0	mg/L	0.5		
Copper content	3	0.3	mg/L	0.3		
Zinc content	2	0.6	mg/L	0.1	0.3	1.4
Soluble iron content	10	1.9	mg/L	0.1		
Soluble manganese content	10	0.3	mg/L	0.1		
Chromium content	2	1.0	mg/L	0.2		
Coliform bacteria count	3,000	468	Num/cm ³	1.0	756	2,300
Nitrogen content	120	76	mg/L	0.4	14	29
Phosphorus content	16	0.1	mg/L	0.01	0.02	0.14
Nickel	3	2.8	mg/L	0.01	0.03	0.07

■ PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Ferric Chloride	0	4.6	0
Silver and its water-soluble compounds	0	1.0	0
Toluene	2.0	5.1	0

■ Water source : Kirime River

■ Drain destination : Inami River

NIIGATA TAIYO YUDEN CO., LTD.

- Total energy consumption (Crude oil equivalent) : 31,086 kL/year
- Total waste generated : 4,096 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	0.06

- 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	-	7.1	7.6	8.2
Biochemical oxygen demand	25~100	8.0	mg/L	1.1	3.2	5.4
Suspended solids	50~100	10	mg/L	1.0	3.5	9.0
N-hexane extract (mineral content)	5	1.0	mg/L	<0.5		
N-hexane extract (animal/plant content)	30	1.0	mg/L			
Coliform bacteria count	3000	3.0	Num/cm ³	0	0.1	1.0
Nitrogen content	120	4.1	mg/L	0.7	2.1	3.1
Phosphorus content	16	1.3	mg/L	0.03	0.4	1.1
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	2	0.2	mg/L	0.1		
Zinc content	2	1.0	mg/L	0.7		
Soluble iron content	10	0.1	mg/L	0.06		
Soluble manganese content	10	0.05	mg/L	0.03		
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	13	0	20
Nickel	0	1.8	38
Nickel compound	0	0.1	2.0

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

TAIYO YUDEN Mobile Technology Co., Ltd.

- Total energy consumption (Crude oil equivalent) : 16,207 kL/year
- Total waste generated : 289 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	30
		Soot and dust	0.1	0.05	g/m ³ N	0.001

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

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Boron and its compounds	10	2.0	mg/L	0.1	0.1	0.2
Fluorine and its compounds	8	5.5	mg/L	0.2	0.6	1.6
Hydrogen ion concentration	5.7~8.7	6.1~8.3	-	6.8	7.1	7.3
Biochemical oxygen demand	300	240	mg/L	17	58	130
Suspended solids	300	84	mg/L	28	43	63
Copper content	3	1.5	mg/L	0.05	0.06	0.07
Nitrogen content	120	102	mg/L	8.1	17	28
Phosphorus content	16	6.0	mg/L	0.2	0.6	1.1

■ PRTR restricted substances

In tons/year

Chemical Substance Name	Total Emissions	Total Transfers	Total Recycles
Hydrogen fluoride and its water-soluble salts	0	1.5	0

- 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	6.2~8.6	-	6.7	7.0	7.3
Biochemical oxygen demand	600	60	mg/L	1.1	2.2	4.0
Suspended solids	600	60	mg/L	4.4	7.3	12
N-hexane extract (mineral content)	5	1.0	mg/L	<0.2		
Nitrogen content	240	37	mg/L	1.7	2.2	2.7
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)

KOREA KYONG NAM TAIYO YUDEN CO., LTD.

- Total energy consumption (Crude oil equivalent) : 38,634 kL/year
- Total waste generated : 5,180 tons/year (recycling rate: 87.1 %)

<<Head Office / Main Plant>> -> Tongyeong Plant in next page

■ Air emission :

Equipment	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Scrubber	Soot and dust	50	5.9	g/m ³ N	2.2
	SOx	200	6.7	ppm	<1.0
	Ammonia	50	0.7	ppm	<0.3
	Nickel	2	1.0	g/m ³ N	<0.003
	Copper	5	0.2	g/m ³ N	<0.0025
RTO	Toluene	30	0.8	ppm	0.5
	Terpineol	-	1.2	ppm	0.5
	Nickel	2	1.0	g/m ³ N	<0.003
	Total Hydrocarbon (THC)	200	100	ppm	22
Drying furnace	Soot and dust	50	4.5	g/m ³ N	4.3
Bag filter	Soot and dust	50	4.5	g/m ³ N	3.6
Firing furnace	Soot and dust	50	4.5	g/m ³ N	3.4

■ Water quality :

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.8~8.6	6.0~8.0	-	6.8	7.1	8.1
Biochemical oxygen demand	300	30	mg/L	4.1	15	29
Chemical oxygen demand	300	15	mg/L	3.9	9.9	17
Suspended solids	300	15	mg/L	3.2	16	24
N-hexane extract (mineral content)	5	1.1	mg/L	0.6	0.9	1.0
N-hexane extract (animal/plant content)	30	1.1	mg/L	<0.5		
Copper content	3	0.4	mg/L	0.1	0.3	0.8
Fluorine and its compounds	15	2.0	mg/L	0.4	1.0	1.6
Nitrogen content	60	30	mg/L	13	24	30.3
Phosphorus content	20	1.0	mg/L	0.06	0.5	1.3
Anionic surfactant	5	0.5	mg/L	<0.09		
Nickel	3	2.5	mg/L	0.6	1.6	2.8
Chromium content	2	1.0	mg/L	<0.007		
Zinc content	5	0.3	mg/L	0.04		
Phenol	3	1.5	mg/L	<0.007		
Soluble manganese content	10	0.2	mg/L	0.09		
Soluble iron content	10	0.5	mg/L	0.3		
Coliform bacteria count	3,000	100	Num/cm ³	32		
Trichloroethylene	0.3	0.2	mg/L	<0.002		
Tetrachloroethylene	0.1	0.1	mg/L	<0.002		

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

<<Tongyeong Plant>>

- Total energy consumption (Crude oil equivalent) : 286 kL/year
- Total waste generated : 4.0 tons/year (recycling rate: 0.0 %)
- 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 : Jinjunamgang River
- Drain destination : Tongyeong Sea

TAIYO YUDEN (GUANGDONG) CO., LTD.

- Total energy consumption (Crude oil equivalent) : 33,295 kL/year
- Total waste generated : 1,710 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	50	50	mg/m ³ N	18
		Total suspended particulates	20	30	mg/m ³ N	7.5
		NOx	150	150	mg/m ³ N	122
Generator	Kerosene	Ringelmann smoke density	1	1	class	1
		Sulfur dioxide	550	338	mg/m ³ N	102
		Total suspended particulates	120	93	mg/m ³ N	20
		NOx	240	240	mg/m ³ N	32
Cafeteria	Natural gas	Oily smoke	2	1.5	ppm	1.3
Scrubber	-	Hydrogen chloride	30	15	mg/m ³ N	1.7
RTO	Natural gas	Toluene	20	20	mg/m ³ N	8.2
		Methanol	190	190	mg/m ³ N	187

- Water quality :

Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Ammonia and similar nitrogen compounds	15	6.0	mg/L	0.004	0.04	0.2
Hydrogen ion concentration	6.0~9.0	6.3~8.0	-	6.4	7.1	7.7
Chemical oxygen demand	80	50	mg/L	11	19	23
Suspended solids	30	15	mg/L	3.0	4.5	11
Zinc content	1	0.5	mg/L	0.05		
Nitrogen content	20	15	mg/L	6.3	9.9	14.5
Copper content	0.5	0.2	mg/L	0.01	0.03	0.06
Nickel	0.5	0.3	mg/L	0.02	0.02	0.04

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0~9.0	6.0~9.0	-	6.5	7.2	7.9
Biochemical oxygen demand	300	300	mg/L	7.6	19	30
Chemical oxygen demand	500	500	mg/L	21	50	78
Suspended solids	400	400	mg/L	16	30	43
Animal/Vegetable oils	100	100	mg/L	0.2	0.7	1.3
Petroleum	20	20	mg/L	0.3	0.3	0.3

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

TAIYO YUDEN (TIANJIN) ELECTRONICS CO., LTD.

- Total energy consumption (Crude oil equivalent) : 676 kL/year
- Total waste generated : 3.9 tons/year (recycling rate: 100 %)
- Air emission :

Equipment	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Drying furnace	Non-methane hydrocarbon (NMHC)	120	120	mg/m ³ N	4.0
		10	10	kg/h	0.003
	Tin and its compounds	8.5	8.5	mg/m ³ N	0
		0.3	0.3	kg/h	6.08×10 ⁻⁶

- Water quality :

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0~9.0	6.0~9.0	-	7.2		
Biochemical oxygen demand	300	300	mg/L	101		
Chemical oxygen demand	500	500	mg/L	316		
Suspended solids	400	400	mg/L	48		
N-hexane extract (animal/plant content)	100	100	mg/L	2.8		
Nitrogen content	70	70	mg/L	1.6		
Ammonical nitrogen	45	45	mg/L	1.1		
Phosphorus content	8.0	8.0	mg/L	0.1		

- Water source : Luan River
- Drain destination : Hai River

TAIYO YUDEN (PHILIPPINES), INC.

- Total energy consumption (Crude oil equivalent) : 18,189 kL/year
- Total waste generated : 1,497 tons/year (recycling rate: 88.8 %)
- Air emission :

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Scrubber	-	Hydrogen sulfide	7	5.6	mg/m ³ N	0.3
		Nitrogen dioxide	500	400	mg/m ³ N	9.6
		Sulfur dioxide	200	160	mg/m ³ N	3.3
		Particulate matter	200	160	mg/m ³ N	0.4
		Nickel	20	16	mg/m ³ N	<0.006
		Ammonia	20	16	mg/m ³ N	<0.0008

- Water quality :

Items	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	6.0~9.0	6.0~9.0	-	6.7	7.9	8.7
Biochemical oxygen demand	100	96	mg/L	4.0	20	67
Chemical oxygen demand	200	184	mg/L	10	38	85
Suspended solids	150	52	mg/L	2.0	11	44
Oil & Grease	10	5.2	mg/L	1.0	1.5	2.0
Silver content	1	1.0	mg/L	<0.01		
Lead and its compounds	0.5	0.5	mg/L	<0.01		
Zinc content	10	0.7	mg/L	0.01	0.02	0.03
Nickel	1	0.9	mg/L	0.1	0.3	0.6

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

TAIYO YUDEN (SARAWAK) SDN.BHD.

- Total energy consumption (Crude oil equivalent) : 37,283 kL/year
- Total waste generated : 5,681 tons/year (recycling rate: 79.7 %)
- Air emission :

Equipment	Fuel	Emissions to Air	Emission Limit	Self-control Standard	Unit	Actual Max.
Scrubber		Hydrogen chloride	0.03	0.001	g/m ³ N	0.0019
		Sulfuric acid	0.005	0.001	g/m ³ N	0.0008
Boiler	LP gas	Dust Particulate	0.05	0.03	g/m ³ N	0.027
		Dark Smoke	20	20	%	0
Sludge Dryer	LP gas	Dust Particulate	0.05	0.04	mg/m ³ N	0.04
		Dark Smoke	20	20	%	1.6

- Water quality :

Industrial wastewater

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Temperature	40	32	°C	27	29	34
Hydrogen ion concentration	5.5~9.0	6.6~8.9	-	6.6	7.8	8.7
Biochemical oxygen demand	50	13	mg/L	2.0	3.7	8.5
Chemical oxygen demand	200	160	mg/L	10	26	52
Suspended solids	100	11	mg/L	5.0	6.4	12
Zinc content	2	0.05	mg/L	0.02	0.06	0.2
Copper content	1	0.8	mg/L	0.06	0.3	0.9
Nickel	1	0.8	mg/L	0.1	0.4	1.1 ^{*1}
Tin	1	0.8	mg/L	0.08	0.3	1.0
Soluble iron content	5	4.0	mg/L	0.4	1.6	2.9

*1: Nickel exceeds the legal standard because of production change.

Human sewage

Item	Effluent Std.	Self-control Standard	Unit	Actual		
				Min.	Ave.	Max.
Hydrogen ion concentration	5.5~9.0	6.8~8.8	-	6.8	7.7	8.5
Biochemical oxygen demand	50	2.6	mg/L	2.0	2.6	9.6
Chemical oxygen demand	200	30	mg/L	10	11	21
Suspended solids	100	7.0	mg/L	5.0	5.1	5.8
Ammonia Nitrogen	50	1.7	mg/L	0.2	0.8	2.6
Oil & Grease	20	1.7	mg/L	1.0		

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