

Environment Data & Environmental Accounting 2022

For the year ended December 31, 2022

Environment Data

■ Scope of Analysis

Japan	:	STAR MICRONICS CO., LTD.	(Head Office/Quality Technical Center/Kikugawa Factory/Solution Center Tokyo Sales Office/Osaka Sales Office/Nagoya Sales Office/Suwa Sales Office)
		Star Metal Company	
		Micro Sapporo Company	
Outside Japan	:	Star Micronics Manufacturing Dalian Co., Ltd.	
		Star Micronics Manufacturing (Thailand) Co., Ltd.	
		Shanghai S&E Precision CO., Ltd. (Ends in FY 2018)	
Target Period	:	FY2018 : March 1, 2018 - December 31, 2018	
		FY2019 : January 1, 2019 - December 31, 2019	
		FY2020 : January 1, 2020 - December 31, 2020	
		FY2021 : January 1, 2021 - December 31, 2021	
		FY2022 : January 1, 2022 - December 31, 2022	

■ Solar Power Facilities

	FY2022
Output	350kW
Average Households	130Households
Power Generated	453,000kWh

※Scope of Analysis : Kikugawa Factory/Star Metal Company.

※Selling Destination : Chubu Electric Power Company, Incorporated.

■ Environmental Impact Related to Climate Change

Scope 1, 2 CO ₂ Emissions (t-CO ₂)			FY2018	FY2019	FY2020	FY2021	FY2022	
Scope1	Heavy Oil	Japan	119	234	201	190	295	
		Outside Japan	0	0	0	0	0	
	Gasoline	Japan	138	148	108	131	141	
		Outside Japan	163	145	84	104	104	
	Light Oil	Japan	0	0	0	0	0	
		Outside Japan	24	22	15	20	6	
	kerosene	Japan	1	1	0	0	0	
		Outside Japan	0	0	0	0	0	
	LPG	Japan	97	87	84	115	161	
		Outside Japan	175	166	83	225	272	
	Total	Japan	355	470	393	436	597	
		Outside Japan	362	333	182	349	382	
Scope2	Electricity	Japan	5,275	5,960	3,895	4,426	4,812	
		Outside Japan	6,989	6,788	4,417	5,816	6,148	
	Steam	Japan	0	0	0	0	0	
		Outside Japan	703	929	684	602	266	
		Total	Japan	5,275	5,960	3,895	4,426	4,812
			Outside Japan	7,692	7,717	5,101	6,418	6,414
Scope1 and Scope2	Japan		5,630	6,430	4,288	4,862	5,409	
	Outside Japan		8,054	8,050	5,283	6,767	6,796	
	Total		13,684	14,480	9,571	11,629	12,205	

Scope 1, 2 CO ₂ Emissions Per Unit of Sales (t-CO ₂ /million JPY)		FY2018	FY2019	FY2020	FY2021	FY2022
Scope1 and Scope2	Japan and Outside Japan	0.208	0.239	0.210	0.181	0.140

※Scope1 greenhouse gases is calculated for CO₂ only.

※Scope2 emission factor uses the Ministry of the Environment's "Electric Power Company Emission Coefficient" for each supplier in Japan and representative values for suppliers outside of Japan.

※Scope3 CO₂ emission volume calculations are currently under consideration and have not yet been implemented.

※Emission calculations for greenhouse gases other than CO₂ are currently under consideration and have not yet been implemented.

※The calculation of CO₂ Emissions Per Unit of Sales is "Scope1+Scope2 in the scope of analysis" / "Consolidated net sales".

Environment Data

■ Environmental Impact Related to Energy

Total Energy Consumption (GJ)		FY2018	FY2019	FY2020	FY2021	FY2022
Total Energy Consumption	Japan	127,785	142,090	103,789	118,469	125,642
	Outside Japan	153,436	159,504	108,001	143,703	145,173
	Total	281,221	301,594	211,790	262,172	270,815
Total Energy Consumption Per Unit of Sales (GJ/million JPY)		FY2018	FY2019	FY2020	FY2021	FY2022
Japan and Outside Japan		4.265	4.973	2.365	4.074	3.100
Electricity Consumption (MWh)		FY2018	FY2019	FY2020	FY2021	FY2022
Electricity Consumption	Japan	12,438	13,757	9,969	11,411	11,695
	Outside Japan	13,760	13,911	9,399	12,839	13,940
of which electricity purchased	Japan	12,438	13,757	9,969	11,411	11,695
	Outside Japan	13,760	13,911	9,399	12,839	13,940
of which electricity purchased from renewable energy sources	Japan	0	0	0	0	0
	Outside Japan	0	0	0	0	0
Renewable Energy Generation	Japan	0	0	0	0	0
	Outside Japan	0	0	0	0	0
Renewable Energy Ratio	Japan	0	0	0	0	0
	Outside Japan	0	0	0	0	0

※Energy conversion outside of Japan is calculated using Japan's coefficients.

Heavy Oil (kt)	FY2018	FY2019	FY2020	FY2021	FY2022
Japan	44	87	74	70	109
Outside Japan	0	0	0	0	0
Total	44	87	74	70	109

Gasoline (kt)	FY2018	FY2019	FY2020	FY2021	FY2022
Japan	20	23	17	18	22
Outside Japan	50	62	36	45	45
Total	70	85	53	63	67

Light Oil (kt)	FY2018	FY2019	FY2020	FY2021	FY2022
Japan	0	0	0	0	0
Outside Japan	9	9	6	8	2
Total	9	9	6	8	2

Kerosene (kt)	FY2018	FY2019	FY2020	FY2021	FY2022
Japan	0	0	0	0	0
Outside Japan	0	0	0	0	0
Total	0	0	0	0	0

LPG (kg)	FY2018	FY2019	FY2020	FY2021	FY2022
Japan	38,671	37,932	27,970	38,412	53,539
Outside Japan	58,286	55,403	27,608	75,089	90,641
Total	96,957	93,335	55,578	113,501	144,180

Steam (t)	FY2018	FY2019	FY2020	FY2021	FY2022
Japan	0	0	0	0	0
Outside Japan	4,382	5,788	4,260	3,749	1,656
Total	4,382	5,788	4,260	3,749	1,656

Environment Data

■ Environmental Impact Related to Waste

Total Waste, Hazardous Waste, Recycled Waste		FY2018	FY2019	FY2020	FY2021	FY2022
Total Waste (t)	Japan	360	304	248	320	357
	Outside Japan	598	693	324	527	572
	Total	958	997	572	847	929
of which hazardous waste(t)	Japan	76	59	70	74	79
	Outside Japan	95	17	46	69	71
	Total	171	76	116	143	150
Recycled Waste (t)	Japan	357	301	247	318	355
	Outside Japan	589	337	293	449	489
	Total	946	638	540	767	844
Recycling Rate (%)	Japan	99.2%	99.1%	99.4%	99.4%	99.4%
	Outside Japan	98.5%	48.6%	90.4%	85.2%	85.4%
	Total	98.8%	64.0%	94.3%	90.6%	90.9%

※Harmful waste refers to materials classified as specially controlled industrial waste in Japan's Waste Management Act.

※Recycling volume is the total of thermal recycling and material recycling.

※In Japan, our recycling rate goal is 99.0%.

Non-recycled Waste (t)		FY2018	FY2019	FY2020	FY2021	FY2022
Land-filled	Japan	3	3	2	2	2
	Outside Japan	9	356	31	78	84
	Total	12	359	33	80	86
Incinerated without Recycling	Japan	0	0	0	0	0
	Outside Japan	-	-	-	-	-
	Total	-	-	-	-	-

※Waste incineration volumes without related recycling outside of Japan are not known.

※Items without clear data are marked with "-".

■ Environmental Impact Related to Water

Water Use (m ³)		FY2018	FY2019	FY2020	FY2021	FY2022
Groundwater (recyclable)	Japan	584	943	0	0	0
	Third-party Source (city water)	21,042	24,307	17,452	18,894	21,284
	Third-party Source (industrial water)	0	0	0	0	0
Total (Japan)	21,626	25,250	17,452	18,894	21,284	
Groundwater (recyclable)	Outside Japan	0	0	0	0	0
	Third-party Source (city water)	40,257	25,796	21,263	26,418	20,679
	Third-party Source (industrial water)	14,955	21,444	13,808	20,312	25,856
Total (Outside Japan)	55,212	47,240	35,071	46,730	46,535	
Total (Japan and Outside Japan)	76,838	72,490	52,523	65,624	67,819	
Water Discharge (m ³)		FY2018	FY2019	FY2020	FY2021	FY2022
Surface Water	Japan	0	0	0	0	0
	Third-party Destination	21,626	25,250	17,452	18,894	21,284
	Total (Japan)	21,626	25,250	17,452	18,894	21,284
Surface Water	Outside Japan	40,257	25,796	21,263	26,418	20,679
	Third-party Destination	14,955	21,444	13,808	20,312	25,856
	Total (Outside Japan)	55,212	47,240	35,071	46,730	46,535
Total (Japan and Outside Japan)	76,838	72,490	52,523	65,624	67,819	

Environment Data

■ Response to the PRTR Law in Japan (FY2022)

※Only chemical substances with emissions or movements are displayed.

※Measurements taken for Japan only.

Factory		Emissions Volume (kg)				Transfer Volume (kg)	
		Discharged to the Atmosphere	Discharged to Public Water Bodies	Discharged to the Soil at the Sites	Land-filled at the Sites	Transferred to Sewers	Transferred to Off-site
Kikugawa Factory	Ethylbenzene	0	0	0	0	0	79
	Xylene	0	0	0	0	0	100
	1,2,4-Trimethylbenzene	0	0	0	0	0	7
	Toluene	0	0	0	0	0	60
	Normal hexane extracts	543	0	0	0	0	0
Star Metal Company	Butyl methacrylate	0	0	0	0	0	7
	Toluene	45	0	0	0	0	51
Micro Sapporo Company	Xylene	1,346	0	0	0	0	4
	Nickel compound	0	0	0	0	4	22
Total		1,934	0	0	0	4	330

Total Volume of PRTR Emission and Transfer (Kg)	FY2018	FY2019	FY2020	FY2021	FY2022
	972	1,199	999	1,704	1,934

■ Copy Paper

Copy Paper Purchased (Thousand Sheets)	FY2018	FY2019	FY2020	FY2021	FY2022
Japan	2,788	2,572	1,369	2,068	2,003
Outside Japan	1,301	3,043	2,074	3,025	3,773
Total (Japan and Outside Japan)	4,089	5,615	3,443	5,093	5,776

Environmental Accounting

Target Period	:	January 1, 2022 - December 31, 2022
Japan	:	STAR MICRONICS CO., LTD. Star Metal Company Micro Sapporo Company
Outside Japan	:	Star Micronics Manufacturing Dalian Co., Ltd. Star Micronics Manufacturing (Thailand) Co., Ltd.

■ Environmental Protection Costs

(Thousands of JPY)

Category	Initiatives	Japan		Outside Japan	
		Investment	Cost	Investment	Cost
Costs within business area	Pollution prevention cost	0	5,001	1,756	5,037
	Environmental preservation cost	0	1,136	0	673
	Resource recycling cost	0	9,492	0	3,687
Upstream/downstream cost	Green procurement difference	0	239	0	0
Management activity cost	EMS operation, education, on-site planting	0	13,567	0	4,825
Research & development cost	R&D, WEEE/RoHS measures	0	697	0	0
Social contribution cost	Donations, financial support	0	3,148	0	0
Environmental damage response cost	Repairs for ground/water contamination	0	0	0	0
Total		0	33,280	1,756	14,222

※Excludes depreciation expense.

■ Financial Impact Resulting from Environmental Protection Measures

(Thousands of JPY)

	Category	Japan	Outside Japan
Earnings	Gains from sales of marketable waste from business activities	17,367	6,146
Expense reductions (Year on year)	Total energy expense (electricity/heavy oil/LPG/gasoline/light oil) reductions	▲202,916	▲46,602
	Reductions in water/well water usage expense	▲967	39
	Reductions in copy paper purchase expense	▲782	▲396
	Reductions in waste disposal expense	▲807	1,381
	Others	0	0
	Total	▲205,472	▲45,578

■ Costs Related to Water-related Risks

(Thousands of JPY)

Investment in Research and Development, and Cost of Countermeasures	
Investment	0
Cost	0

■ Environment-related Accidents, Violations, Fines, etc.

Violations of Environmental Laws and Regulations and Occurrence of Accidents	
Serious violations of environment-related laws and regulations	0
Serious accidents related to the environment	0