



Material Balance

Identifying the environmental impact of business operations

The Brother Group's manufacturing facilities are engaged in processing and assembly to manufacture products. The environmental impacts (including resource consumption, CO₂ emissions, and waste generated) associated with all business operations are quantitatively monitored and summarized to reduce environmental impacts.

Resource Utilization and Material Production/Emissions in FY2022 (April 1, 2022–March 31, 2023)

Resource and energy inputs in FY2022

Resource consumption		Total energy consumption		Water consumption	
Product raw materials (t)	231,632	Crude petroleum equivalent (kL)	45,706	Total amount of water consumption (m ³)	593,206

Material production/emissions in FY2022

Greenhouse gas emissions		Wastewater volume		Amount of waste	
Greenhouse gas emissions (t-CO ₂ e)	84,560	Wastewater volume (m ³)	519,795	Production-related waste (t)	12,990
		Volume recycled (m ³)	5,385	Volume recycled (t)	11,803
		Recycling rate (%)	1.0	Rate of landfill waste (%)	1.7

The scope of aggregation was directly related to the product range.

For the locations of applicable sites and their main lines of business, see page 8.

Calculation method

Resource and energy inputs in FY2022		
Resource consumption	The resource consumption is calculated by multiplying the shipments to main products shipped in FY2022 per weight.	
Total energy consumption	Total amount of electricity, steam, LPG/LNG, city gas, petroleum, etc. consumed at applicable business sites in FY2022	
	Crude petroleum equivalent	Calculated by converting electricity, gasoline, light oil, LPG, city gas, etc., into crude petroleum, respectively *: The conversion rate for crude oil equivalent is based on the Appended Table 1 of the Ordinance for Enforcement of the Act on the Rational Use of Energy enacted by the Japanese Ministry of Economy, Trade and Industry.
Water consumption	Total amount of water consumed at applicable business sites in FY2022	
	Clean water, industrial water, and underground water	Measurement using a water meter

Material production/emissions in FY2022		
Greenhouse gas emissions	Market-based method: GHG emissions are calculated based on the emission factors of the electricity that is actually purchased.	
Amount of wastewater	The amount is equivalent to the amount of water intake. However, the amount is calculated based on the measured wastewater amount or in accordance with the formula set in respective regions (based on the amount of water intake), if such measured amount or formula is available	
Amount of waste	Production-related waste	Total amount of waste (including metals, waste plastics, circuit boards, sludge, waste oil/solvents, waste acids/alkalis, glass/ ceramics, and batteries) generated in the production process at applicable business sites in FY2022

Environmental impact data of main business sites before FY2021 can be viewed by downloading the PDF file from the sustainability web site.

Environmental impact data of main business sites in FY2022

Resource consumption, Energy consumption

Name of site	Resource consumption (t)	Energy consumption					
		Electricity (MWh)	LPG (t)	City gas (1,000m ³)	Gasoline (kL)	Light oil (kL)	Kerosene (kL)
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, and Logistics Center)	18,471	39,061	0	794	99	2	0
Nissei Corporation	7,596	29,234	11	1,516	23	2	0
Mie Brother Precision Industries, Ltd.	290	566	0	0	0.6	0	0
Brother Industries (U.K.) Ltd.	480	1,357	0	50	2	0.1	0
Brother Industries (Slovakia) s.r.o.	1,319	840	0	32	3	4	0
Taiwan Brother Industries, Ltd.	991	1,214	0	0	0	0	0
Zhuhai Brother Industries, Co., Ltd.	4,629	2,120	0	0	3	1	0
Brother Machinery Xian Co., Ltd.	12,197	8,156	0	285	0	0.1	0
Brother Technology (Shenzhen) Ltd.	25,327	12,499	0	156	19	2	0
Brother Industries (Philippines), Inc.	44,000	27,719	59	0	0.3	188	0
Brother Industries (Vietnam) Ltd.	105,064	36,078	101	0	0	38	0
Brother Industries Saigon, Ltd.	11,269	3,761	0	0	0	0.7	0

Greenhouse gas emissions

Name of site	Greenhouse gas emissions (t-CO ₂ e)	
	Scope 1	Scope 2
		Market-based
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, and Logistics Center)	1,947	14,814
Nissei Corporation	2,955	11,869
Mie Brother Precision Industries, Ltd.	1	230
Brother Industries (U.K.) Ltd.	99	0
Brother Industries (Slovakia) s.r.o.	78	147
Taiwan Brother Industries, Ltd.	18	609
Zhuhai Brother Industries, Co., Ltd.	9	1,044
Zhuhai Brother Industries, Co., Ltd.	538	5,076
Brother Technology (Shenzhen) Ltd.	345	6,535
Brother Industries (Philippines), Inc.	685	23,196
Brother Industries (Vietnam) Ltd.	403	10,431
Brother Industries Saigon, Ltd.	2	2,440

Water intake, wastewater volume, volume of water recycled

Name of site	Water intake (m ³)			Wastewater volume (m ³)			Volume of water recycled (m ³)	Percent of water recycled (%)
	Clean water	Industrial water	Under-ground water	Public waters	Sewer system	Others		
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Research & Development Center, and Logistics Center)	59,107	0	12,155	0	69,586	147	0	0.0
Eight business sites in Japan (Manufacturing Facility, Kariya)	14,491	0	2	14,491	0	2	0	0.0
Nissei Corporation	59,869	0	0	0	21,464	0	0	0.0
Mie Brother Precision Industries, Ltd.	58	0	1,107	1,165	0	0	0	0.0
Brother Industries (U.K.) Ltd.	1,486	0	0	0	1,486	0	0	0.0
Brother Industries (Slovakia) s.r.o.	0	0	4,216	0	4,216	0	0	0.0
Taiwan Brother Industries, Ltd.	6,638	0	0	0	5,692	0	0	0.0
Zhuhai Brother Industries, Co., Ltd.	36,936	0	0	0	33,242	0	0	0.0
Brother Machinery Xian Co., Ltd.	35,400	0	0	0	27,697	0	1,200	4.2
Brother Technology (Shenzhen) Ltd. Baolong Manufacturing Facility	94,887	0	0	0	94,887	0	1,593	1.7
Brother Industries (Philippines), Inc.	0	0	105,554	0	89,721	0	1,222	1.3
Brother Industries (Vietnam) Ltd.	134,797	0	0	134,797	0	0	972	0.7
Brother Industries Saigon, Ltd.	26,503	0	0	0	21,202	0	398	1.8

Water pollution load

Name of site	Water pollution load (mg/L)			
	BOD	COD	N- hexane extracts content	SS
Eight business sites in Japan (Hoshizaki Manufacturing Facility)	75.8	–	4.6	–
Eight business sites in Japan (Kariya Manufacturing Facility)	6.8	6.5	<1	5.5
Eight business sites in Japan (Logistics Center)*	–	–	–	–
Nissei Corporation	94.2	–	0.1	3.0
Mie Brother Precision Industries, Ltd.	3.1	1.3	ND	20.0
Brother Industries (U.K.) Ltd.	–	–	–	–
Brother Industries (Slovakia) s.r.o.	5.0	17.0	–	<5
Taiwan Brother Industries, Ltd.	8.1	30.2	–	7.2
Zhuhai Brother Industries, Co., Ltd.	32.4	97.0	–	17.0
Brother Machinery Xian Co., Ltd.	9.6	32.0	0.1	31.3
Brother Technology (Shenzhen) Ltd. Baolong Manufacturing Facility	40.0	10.8	4.2	28.0
Brother Industries (Philippines), Inc.	225.2	445.5	7.4	102.0
Brother Industries (Vietnam) Ltd.	<3	<9	–	<0.04
Brother Industries Saigon, Ltd.	34.7	70.8	–	–

*: Measurement was discontinued as there were no identified facilities.

Waste amount

Target: Reduction in waste volume at manufacturing facilities from the previous FY (per unit of sales)

Actual: **Reduction of approx. 6% from the previous FY (per unit of sales)**

Name of site	Waste amount						
	Production-related waste (t)	Material recycling (t)	Thermal recycling (t)	Incineration amount (t)	Other disposal amount (t)	Amount of landfill waste (t)	Rate of landfill waste (%)
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, and Logistics Center)	2,341	2,091	244	7	0	0	0.0
Nissei Corporation	3,045	2,303	741	0	0	0	0.0
Mie Brother Precision Industries, Ltd.	109	70	39	0	0	0	0.0
Brother Industries (U.K.) Ltd.	255	212	42	0	0	0	0.0
Brother Industries (Slovakia) s.r.o.	776	670	106	0	0	0	0.0
Taiwan Brother Industries, Ltd.	349	20	0	45	284	0	0.0
Zhuhai Brother Industries, Co., Ltd.	163	143	0	19	1	0	0.0
Brother Machinery Xian Co., Ltd.	352	239	0	54	59	0	0.0
Brother Technology (Shenzhen) Ltd.	165	112	53	0	1	0	0.0
Brother Industries (Philippines), Inc.	1,241	1,015	0	0	0	227	18.3
Brother Industries (Vietnam) Ltd.	3,816	3,360	0	445	11	0	0.0
Brother Industries Saigon, Ltd.	377	343	0	34	0	0	0.0

To help use resources effectively and prevent resource depletion, the Brother Group ensures activities are carried out to curb waste generation, reduce emissions, and achieve "zero landfill waste" (meaning that less than 1% of waste generated at manufacturing facilities is sent to landfill).

Location and main line of business of applicable sites

Name of site	Location	Main line of business (as of March 31, 2023)
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility*, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, and Logistics Center)	Nagoya, Aichi Prefecture (various locations)	[Mizuho Manufacturing Facility] Research and development of telecommunication/printing equipment, label printers, labeling system, and home sewing machines, [Hoshizaki Manufacturing Facility] Prototype production of printer heads, [Momozono Manufacturing Facility and Research & Development Center] Research and development, [Kariya Manufacturing Facility] Production of label printers, labeling system, garment printers, and machine tools
Nissei Corporation	Anjo, Aichi Prefecture	Manufacture and sales of speed reducers, small gears, and die-cast products; and lease of real estate properties (including condominiums)
Mie Brother Precision Industries, Ltd.	Taki-gun, Mie Prefecture	Production of consumables for online karaoke equipment, mobile printers, label printers, labeling system, etc.; recycling of toner cartridges; product repair services
Brother Industries (U.K.) Ltd.	Wales, U.K.	Production of consumables for printers, All-in-Ones, etc.
Brother Industries (Slovakia) s.r.o.	Krupina, Slovakia	Production of consumables for printers, All-in-Ones, etc.
Taiwan Brother Industries, Ltd.	Kaohsiung, Taiwan	Production of home sewing machines
Zhuhai Brother Industries, Co., Ltd.	Zhuhai, Guangdong, China	Production of label printers, labeling system, industrial printing equipment, etc.
Brother Machinery Xian Co., Ltd.	Xian, Shaanxi, China	Production of industrial sewing machines and machine tools
Brother Technology (Shenzhen) Ltd.	Shenzhen, Guangdong, China	Production of printers and All-in-Ones
Brother Industries (Philippines), Inc.	Batangas, the Philippines	Production of printers, All-in-Ones, and labeling system
Brother Industries (Vietnam) Ltd.	Hai Duong Province, Vietnam	Production of printers and All-in-Ones
Brother Industries Saigon, Ltd.	Dong Nai Province, Vietnam	Production of home sewing machines