



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 FY2019 (April 1, 2019–March 31, 2020)

Resource and energy inputs in FY2019

| Resource consumption | | Total energy consumption | | Water consumption | |
|---------------------------|---------|---------------------------------|--------|---|---------|
| Product raw materials (t) | 197,696 | Crude petroleum equivalent (kL) | 43,230 | Total amount of water consumption (m ³) | 651,202 |

Material production/emissions in FY2019

| CO ₂ emissions | | Wastewater volume | | Amount of waste | |
|--|--------|-------------------------------------|---------|------------------------------|--------|
| Greenhouse gas emissions (t-CO ₂ e) | 90,960 | Wastewater volume (m ³) | 573,065 | Production-related waste (t) | 12,963 |
| | | Volume recycled (m ³) | 421 | Volume recycled (t) | 11,276 |
| | | Recycling rate (%) | 0.1 | Rate of landfill waste (%) | 0.85 |

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 FY2019 | | |
|--------------------------------------|--|---|
| Resource consumption | The resource consumption is calculated by multiplying the shipments to main products shipped in FY2019 per weight. | |
| Total energy consumption | Total amount of electricity, steam, LPG/LNG, city gas, petroleum, etc. consumed at applicable business sites in FY2019 | |
| | 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 FY2019 | |
| | Clean water, industrial water, and underground water | Measurement using a water meter |

| Material production/emissions in FY2019 | | |
|---|---|--|
| CO ₂ emissions | This is calculated using the location-based method, which is a method where calculations are performed based on the grid-average emission factors in a certain area such as a country or region. *: The sources of emission factors for the location-based method are as follows: •IEA, "CO ₂ Emissions from Fuel Combustion 2018" •GHG Protocol, Calculation Tools •DEFRA | |
| 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 FY2019 |

Environmental impact data of main business sites before FY2018 can be viewed by downloading the PDF version of the CSR reports.

Environmental impact data of main business sites in FY2019

| 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) | 11,573 | 34,832 | 0 | 732 | 41 | 3 | 0 |
| Nissei Corporation | 6,878 | 26,783 | 12 | 1,802 | 27 | 2 | 3 |
| Mie Brother Precision Industries, Ltd. | 508 | 543 | 0 | 0 | 1 | 0 | 0 |
| Brother Industries (U.K.) Ltd. | 703 | 1,287 | 0 | 75 | 2 | 0.4 | 0 |
| Brother Industries (Slovakia) s.r.o. | 771 | 588 | 0 | 66 | 0 | 10 | 0 |
| Taiwan Brother Industries, Ltd. | 1,336 | 1,819 | 5 | 0 | 0 | 0 | 0 |
| Zhuhai Brother Industries, Co., Ltd. | 6,371 | 2,381 | 0 | 0 | 3 | 1 | 0 |
| Brother Machinery Xian Co., Ltd. | 5,594 | 7,001 | 0 | 200 | 0.1 | 1 | 0 |
| Brother Technology (Shenzhen) Ltd. | 20,484 | 15,923 | 0 | 249 | 78 | 36 | 0 |
| Brother Industries (Philippines), Inc. | 36,432 | 24,513 | 46 | 0 | 0.5 | 0.1 | 0 |
| Brother Industries (Vietnam) Ltd. | 92,312 | 28,985 | 106 | 0 | 0 | 24 | 0 |
| Brother Machinery Vietnam Co., Ltd. | 1,989 | 3,033 | 148 | 0 | 0 | 6 | 0 |
| Brother Industries Saigon, Ltd | 12,747 | 3,803 | 0 | 0 | 0.2 | 0.7 | 0 |

* : The Minato Manufacturing Facility stopped production on September 30, 2017.

Greenhouse gas emissions

| Name of site | Greenhouse gas emissions (t-CO ₂ e) | | |
|---|--|----------------|--------------|
| | Scope 1 | Scope 2 | |
| | | Location-based | 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) | 1,486 | 18,949 | 16,580 |
| Nissei Corporation | 3,517 | 14,570 | 12,748 |
| Mie Brother Precision Industries, Ltd. | 3 | 295 | 258 |
| Brother Industries (U.K.) Ltd. | 148 | 358 | 494 |
| Brother Industries (Slovakia) s.r.o. | 175 | 93 | 0 |
| Taiwan Brother Industries, Ltd. | 15 | 1,068 | 970 |
| Zhuhai Brother Industries, Co., Ltd. | 10 | 1,493 | 2,172 |
| Zhuhai Brother Industries, Co., Ltd. | 380 | 4,389 | 6,385 |
| Brother Technology (Shenzhen) Ltd. | 1,060 | 9,984 | 14,522 |
| Brother Industries (Philippines), Inc. | 138 | 14,879 | 21,005 |
| Brother Industries (Vietnam) Ltd. | 1,409 | 13,014 | 16,289 |
| Brother Machinery Vietnam Co., Ltd. | 457 | 1,362 | 1,704 |
| Brother Industries Saigon, Ltd | 2 | 1,708 | 2,137 |

* : The Minato Manufacturing Facility stopped production on September 30, 2017.

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 | Underground water | River | 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) | 65,441 | 0 | 0 | 0 | 63,892 | 127 | 0 | 0.0 |
| Eight business sites in Japan (Manufacturing Facility, Kariya) | 17,566 | 0 | 42 | 17,566 | 0 | 42 | 0 | 0.0 |
| Nissei Corporation | 62,195 | 0 | 0 | 0 | 22,489 | 0 | 0 | 0.0 |
| Mie Brother Precision Industries, Ltd. | 70 | 0 | 1,294 | 1,364 | 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 | 2,450 | 0 | 2,450 | 0 | 0 | 0.0 |
| Taiwan Brother Industries, Ltd. | 9,874 | 0 | 0 | 0 | 6,713 | 0 | 0 | 0.0 |
| Zhuhai Brother Industries, Co., Ltd. | 71,777 | 0 | 0 | 0 | 64,599 | 0 | 0 | 0.0 |
| Brother Machinery Xian Co., Ltd. | 24,210 | 0 | 0 | 0 | 20,343 | 0 | 0 | 0.0 |
| Brother Technology (Shenzhen) Ltd. Baolong Manufacturing Facility | 83,361 | 0 | 0 | 0 | 83,361 | 0 | 270 | 0.3 |
| Brother Technology (Shenzhen) Ltd. Nanwan Manufacturing Facility | 27,913 | 0 | 0 | 27,913 | 0 | 0 | 0 | 0.0 |
| Brother Industries (Philippines), Inc. | 0 | 0 | 96,771 | 0 | 82,255 | 0 | 0 | 0.0 |
| Brother Industries (Vietnam) Ltd. | 143,860 | 0 | 0 | 143,860 | 0 | 0 | 0 | 0.0 |
| Brother Machinery Vietnam Co., Ltd. | 11,021 | 0 | 0 | 0 | 9,027 | 82 | 151 | 1.6 |
| Brother Industries Saigon, Ltd | 31,871 | 0 | 0 | 0 | 25,497 | 0 | 0 | 0.0 |

* : The Minato Manufacturing Facility stopped production on September 30, 2017.

Water pollution load

| Name of site | Water pollution load (mg/L) | | | |
|---|-----------------------------|-------|--------------------|------|
| | BOD | COD | N- hexane extracts | SS |
| Eight business sites in Japan (Hoshizaki Manufacturing Facility) | 109.8 | – | 4.1 | – |
| Eight business sites in Japan (Kariya Manufacturing Facility) | 1.9 | 7.5 | <1 | 8.8 |
| Eight business sites in Japan (Logistics Center) | 8.7 | – | 1.0 | – |
| Nissei Corporation | 115.9 | – | 0.1 | 2.9 |
| Mie Brother Precision Industries, Ltd. | 5.0 | 17.0 | ND | 15.0 |
| Brother Industries (U.K.) Ltd. | – | – | – | – |
| Brother Industries (Slovakia) s.r.o. | 2.5 | 16.9 | – | 6.0 |
| Taiwan Brother Industries, Ltd. | ND | 7.1 | – | 3.4 |
| Zhuhai Brother Industries, Co., Ltd. | 5.2 | 22.0 | – | 28.5 |
| Brother Machinery Xian Co., Ltd. | 16.3 | 49.0 | 0.1 | 23.7 |
| Brother Technology (Shenzhen) Ltd. Baolong Manufacturing Facility | 17.8 | 64.0 | 0.9 | 28.0 |
| Brother Technology (Shenzhen) Ltd. Nanwan Manufacturing Facility | 7.1 | 26.0 | 0.1 | 8.0 |
| Brother Industries (Philippines), Inc. | 165.0 | 328.0 | 3.0 | 55.0 |
| Brother Industries (Vietnam) Ltd. | 3.0 | 6.0 | – | – |
| Brother Machinery Vietnam Co., Ltd. | 6.0 | 17.0 | 1.0 | 10.0 |
| Brother Industries Saigon, Ltd | 93.0 | 139.5 | 7.4 | 58.5 |

Waste amount

Target: Reduction in waste amount compared to the previous FY

Actual: Reduction of 1,205 tons compared to 14,168 tons in the previous FY

| 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) | 1,928 | 1,675 | 246 | 7 | 0 | 0 | 0.0 |
| Nissei Corporation | 2,992 | 2,091 | 902 | 0 | 0 | 0 | 0.0 |
| Mie Brother Precision Industries, Ltd. | 106 | 74 | 32 | 0 | 0 | 0 | 0.0 |
| Brother Industries (U.K.) Ltd. | 321 | 304 | 18 | 0 | 0 | 0 | 0.0 |
| Brother Industries (Slovakia) s.r.o. | 566 | 477 | 89 | 0 | 0 | 0 | 0.0 |
| Taiwan Brother Industries, Ltd. | 812 | 14 | 0 | 51 | 747 | 0 | 0.0 |
| Zhuhai Brother Industries, Co., Ltd. | 174 | 154 | 0 | 17 | 2 | 0.3 | 0.2 |
| Brother Machinery Xian Co., Ltd. | 367 | 223 | 0 | 87 | 58 | 0 | 0.0 |
| Brother Technology (Shenzhen) Ltd. | 397 | 344 | 53 | 0 | 0 | 0 | 0.0 |
| Brother Industries (Philippines), Inc. | 1,389 | 1,278 | 0 | 0 | 2 | 109 | 7.9 |
| Brother Industries (Vietnam) Ltd. | 3,206 | 2,862 | 0 | 343 | 0 | 0 | 0.0 |
| Brother Machinery Vietnam Co., Ltd. | 342 | 85 | 21 | 46 | 189 | 1 | 0.3 |
| Brother Industries Saigon, Ltd | 363 | 335 | 0 | 28 | 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).

* : The Minato Manufacturing Facility stopped production on September 30, 2017.

Location and main line of business of applicable sites

| Name of site | Location | Main line of business (as of March 31, 2020) |
|---|--|---|
| 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, electronic stationery, 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 electronic stationery, 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, electronic stationery, 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 electronic stationery, scanners, industrial printing equipment, etc. |
| Brother Machinery Xian Co., Ltd. | Xian, Shaanxi, China | Production of industrial sewing machines and machine tools |
| Brother Technology (Shenzhen) Ltd.: Baolong Manufacturing Facility, Nanwan Manufacturing Facility | Shenzhen, Guangdong, China | Production of printers and All-in-Ones |
| Brother Industries (Philippines), Inc. | Batangas, the Philippines | Production of printers, All-in-Ones, and electronic stationery |
| Brother Industries (Vietnam) Ltd. | Hai Duong Province, Vietnam | Production of printers and All-in-Ones |
| Brother Machinery Vietnam Co., Ltd. | Hai Duong Province, Vietnam | Production of industrial sewing machines |
| Brother Industries Saigon, Ltd. | Dong Nai Province, Vietnam | Production of home sewing machines |

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