



Environmental Databook 2022

Shionogi & Co., Ltd.

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Databook Environmental data

INPUT-OUTPUT

As of July 7, 2022

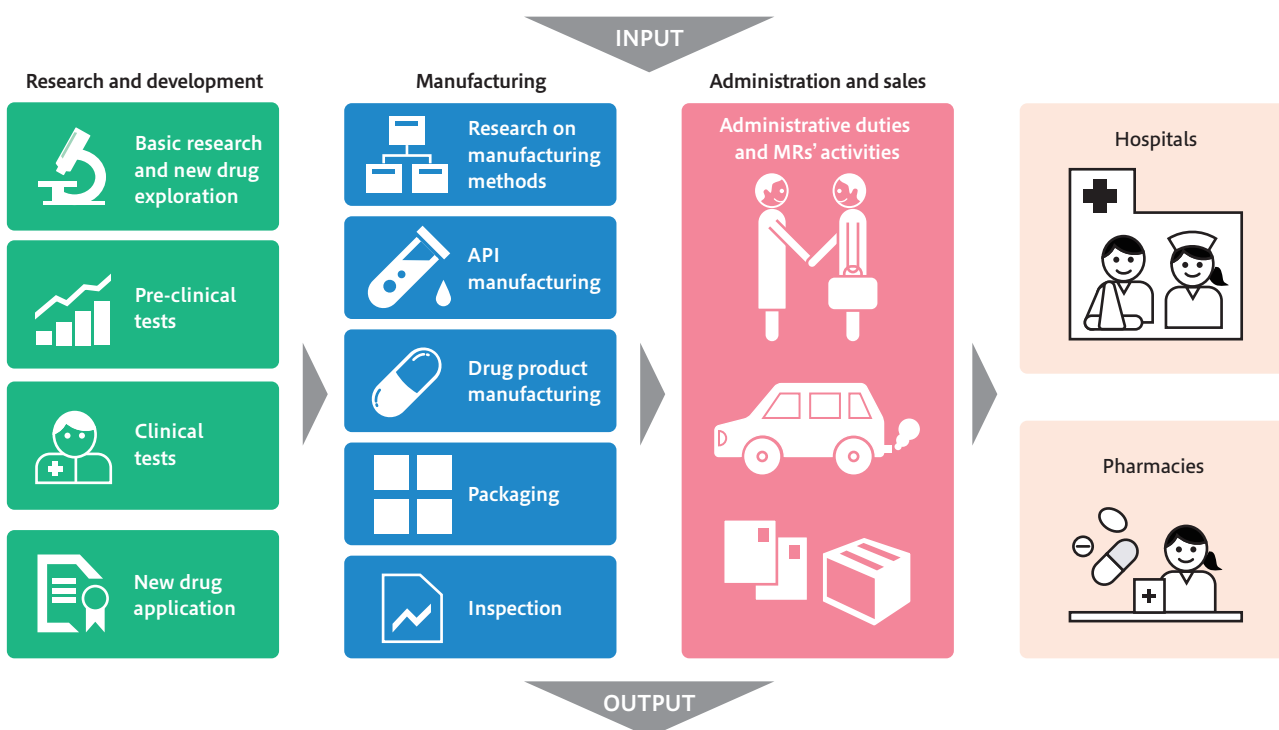
FY 2021 Results

| Energy | | |
|-------------------------------|--------------------------|---------|
| Total energy | MWh | 333,548 |
| steam | MWh | 5,314 |
| Electricity | MWh | 102,436 |
| Town gas | thousand Nm ³ | 6,961 |
| Liquefied petroleum gas (LPG) | tons | 301 |
| Liquefied natural gas (LNG) | tons | 8,330 |
| Heavy oil | kl | 22 |
| Kerosene | kl | 3 |
| Light oil | kl | 4 |
| Gasoline | kl | 7 |
| Gasoline (for sales vehicles) | kl | 785 |

| Water | | |
|------------------|-------------------------|-------|
| Tap water | thousand m ³ | 266 |
| Industrial water | thousand m ³ | 1,091 |

| Chemicals | | |
|--|------|-----|
| PRTR-designated chemicals (quantity handled) | tons | 560 |

| Containers and packaging materials | | |
|------------------------------------|------|-------|
| Quantity used | tons | 1,366 |



| Atmosphere | | |
|---|----------------------|--------|
| CO ₂ (Scope 1 used as fuel) | tons-CO ₂ | 39,443 |
| CO ₂ (Scope 1 used for sales vehicles) | tons-CO ₂ | 1,821 |
| CO ₂ (Scope 2) | tons-CO ₂ | 42,900 |
| NO _x | tons | 16 |
| SO _x | tons | 1 |
| Particulate matter | tons | 2 |
| PRTR-designated substances | tons | 36 |
| VOC | tons | 48 |
| Fluorocarbons | tons-CO ₂ | 355 |

| Waste materials | | |
|--|------|-------|
| Waste generated (excluding valuable resources) | tons | 6,079 |
| Waste generated (including valuable resources) | tons | 5,169 |
| Reused/recycled | tons | 5,400 |
| Sent to landfill | tons | 57 |
| PRTR-designated substances | tons | 498 |

| Containers and packaging materials | | |
|------------------------------------|------|-----|
| Consigned for reuse/recycling | tons | 254 |

| Water | | |
|----------------------------|-------------------------|-------|
| Sewers | thousand m ³ | 355 |
| Public waters | thousand m ³ | 1,145 |
| BOD | tons | 5 |
| COD | tons | 3 |
| PRTR-designated substances | tons | 1 |
| Nitrogen | tons | 6 |
| Phosphorous | tons | 1 |

Scope:
Japan
The scope of energy-related data is Japan and China

■ Environmental efficiency

As of July 7, 2022

(FY)

| | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---------|---------|---------|---------|---------|
| CO ₂ emissions (tons-CO ₂) * | 90,136 | 82,711 | 82,209 | 79,201 | 84,164 |
| Water consumption (thousand m ³) | 1,389 | 1,315 | 1,263 | 1,217 | 1,366 |
| Amount of waste generated (tons) | 3,486 | 3,824 | 3,062 | 4,180 | 5,169 |
| CO ₂ emissions (tons-CO ₂)/sales revenue (million yen) | 0.262 | 0.225 | 0.247 | 0.267 | 0.251 |
| Water consumption (thousand m ³)/sales revenue (million yen) | 0.0040 | 0.0036 | 0.0038 | 0.0041 | 0.0041 |
| Amount of waste generated (tons)/sales revenue (million yen) | 0.010 | 0.010 | 0.009 | 0.014 | 0.015 |
| Sales revenue (million yen) | 344,667 | 367,960 | 333,371 | 297,177 | 335,138 |
| ROE (%) | 19.4 | 17.8 | 15.5 | 13.9 | 12.5 |

Scope:

Japan

CO₂ Emissions are from Japan and China

*SBT standard boundary from FY2019

■ Climate change

As of July 7, 2022

Greenhouse gas (GHG) emissions

(FY)

| Indicators | | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------------------------|--|----------------------|-------|---------|---------|---------|---------|---------|
| Total of Scope 1, 2 and 3 | Location-based | tons-CO ₂ | | 287,356 | 209,171 | 226,883 | 200,519 | 221,295 |
| | Market-based | tons-CO ₂ | | 286,898 | 204,031 | 218,614 | 194,129 | 217,184 |
| Total of Scope 1 and 2 | Location-based | tons-CO ₂ | | 90,595 | 87,850 | 85,208 | 81,730 | 88,275 |
| | Market-based | tons-CO ₂ | | 90,136 | 82,711 | 76,939 | 75,339 | 84,164 |
| Scope 1 | | tons-CO ₂ | | 43,456 | 41,349 | 37,519 | 37,537 | 41,264 |
| | | | Japan | 42,023 | 39,832 | 36,836 | 37,529 | 41,256 |
| | | | China | 1,433 | 1,517 | 682 | 8 | 8 |
| Scope 2 | Location-based | tons-CO ₂ | | 47,139 | 46,501 | 47,690 | 44,193 | 47,011 |
| | | | Japan | 42,751 | 41,713 | 41,004 | 37,249 | 40,776 |
| | | | China | 4,388 | 4,788 | 6,685 | 6,944 | 6,235 |
| Scope 2 | Market-based | tons-CO ₂ | | 46,681 | 41,362 | 39,421 | 37,802 | 42,900 |
| | | | Japan | 42,293 | 36,574 | 32,735 | 30,858 | 36,664 |
| | | | China | 4,388 | 4,788 | 6,685 | 6,944 | 6,235 |
| Total of Scope 3 | | tons-CO ₂ | Japan | 196,761 | 121,321 | 141,675 | 118,789 | 133,020 |
| breakdown | | | | | | | | |
| Category 1 | Purchased goods and service | tons-CO ₂ | Japan | 128,468 | 100,659 | 98,894 | 86,432 | 68,059 |
| Category 2 | Capital goods | tons-CO ₂ | Japan | 58,283 | 10,627 | 29,343 | 17,449 | 48,073 |
| Category 3 | Fuel- and energy-related activities (not included in scope 1 or scope 2) | tons-CO ₂ | Japan | 2,876 | 2,798 | 5,732 | 5,710 | 6,424 |
| Category 4 | Upstream transportation and distribution | tons-CO ₂ | Japan | 918 | 1,012 | 1,049 | 955 | 947 |
| Category 5 | Waste generated in operations | tons-CO ₂ | Japan | 3,797 | 4,092 | 3,905 | 5,468 | 6,962 |
| Category 6 | Business travel | tons-CO ₂ | Japan | 703 | 684 | 814 | 820 | 823 |
| Category 7 | Employee commuting | tons-CO ₂ | Japan | 800 | 780 | 1,398 | 1,449 | 1,177 |
| Category 8 | Upstream leased assets | tons-CO ₂ | Japan | —*1 | —*1 | —*1 | —*1 | —*1 |
| Category 9 | Downstream transportation and distribution | tons-CO ₂ | Japan | —*2 | —*2 | —*2 | —*2 | —*2 |
| Category 10 | Processing of sold products | tons-CO ₂ | Japan | —*1 | —*1 | —*1 | —*1 | —*1 |
| Category 11 | Use of sold products | tons-CO ₂ | Japan | —*1 | —*1 | —*1 | —*1 | —*1 |
| Category 12 | End-of-life treatment of sold products | tons-CO ₂ | Japan | 915 | 669 | 540 | 507 | 556 |
| Category 13 | Downstream leased assets | tons-CO ₂ | Japan | —*1 | —*1 | —*1 | —*1 | —*1 |
| Category 14 | Franchises | tons-CO ₂ | Japan | —*1 | —*1 | —*1 | —*1 | —*1 |
| Category 15 | Investments | tons-CO ₂ | Japan | —*1 | —*1 | —*1 | —*1 | —*1 |

*1 GHG emissions in this category are not relevant because the activities related in this category are not conducted in our businesses.

*2 GHG emissions in this category are not calculated because the distribution channels are complicated, but this impact is extremely small.

As of July 7, 2022

Energy consumption

(FY)

| Indicators | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|-------|---------|---------|---------|---------|---------|
| Total energy consumption | MWh | | 327,441 | 314,174 | 299,760 | 305,339 | 333,548 |
| | MWh | China | 13,517 | 13,898 | 16,732 | 16,600 | 13,617 |
| | MWh | Japan | 313,924 | 300,276 | 283,029 | 288,738 | 319,930 |
| Steam | MWh | | 0 | 0 | 4,406 | 8,159 | 5,314 |
| | MWh | China | 0 | 0 | 4,406 | 8,159 | 5,314 |
| | MWh | Japan | 0 | 0 | 0 | 0 | 0 |
| Electricity | MWh | | 90,497 | 89,107 | 93,245 | 92,111 | 102,436 |
| | MWh | China | 6,998 | 7,636 | 9,221 | 8,405 | 94,170 |
| | MWh | Japan | 83,499 | 81,471 | 84,025 | 83,706 | 8,266 |
| Town gas | thousand Nm ³ | | 6,860 | 6,138 | 5,771 | 5,786 | 6,961 |
| | thousand Nm ³ | China | 0 | 0 | 0 | 0 | 0 |
| | thousand Nm ³ | Japan | 6,860 | 6,138 | 5,771 | 5,786 | 6,961 |
| Liquefied petroleum gas (LPG) | tons | | 808 | 830 | 580 | 347 | 301 |
| | tons | China | 462 | 489 | 220 | 3 | 3 |
| | tons | Japan | 346 | 341 | 360 | 345 | 298 |
| Liquefied natural gas (LNG) | tons | | 8,067 | 7,932 | 7,113 | 7,876 | 8,330 |
| | tons | China | 0 | 0 | 0 | 0 | 0 |
| | tons | Japan | 8,067 | 7,932 | 7,113 | 7,876 | 8,330 |
| Heavy oil A | kl | | 49 | 82 | 39 | 57 | 22 |
| | kl | China | 0 | 0 | 0 | 0 | 0 |
| | kl | Japan | 49 | 82 | 39 | 57 | 22 |
| Gasoline | kl | | 1,749 | 1,598 | 1,382 | 779 | 798 |
| | kl | China | 0 | 0 | 0 | 0 | 0 |
| | kl | Japan | 1,749 | 1,598 | 1,382 | 779 | 798 |
| Light oil | kl | | 2 | 3 | 8 | 6 | 4 |
| | kl | China | 0 | 0 | 0 | 0 | 0 |
| | kl | Japan | 2 | 3 | 8 | 6 | 4 |
| Kerosene | kl | | 2 | 1 | 2 | 1 | 3 |
| | kl | China | 0 | 0 | 0 | 0 | 0 |
| | kl | Japan | 2 | 1 | 2 | 1 | 3 |

Resources conservation and circulation

As of July 7, 2022

Waste management

(FY)

| Indicators | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|------|-------|-------|-------|-------|-------|-------|
| Waste generated (including valuable resources) | tons | Japan | 4,166 | 4,804 | 3,646 | 4,846 | 6,079 |
| | tons | China | 23 | 25 | 70 | 70 | 85 |
| Waste generated (excluding valuable resources) | tons | Japan | 3,486 | 3,824 | 3,062 | 4,180 | 5,169 |
| | tons | China | 23 | 25 | 70 | 70 | 85 |
| Waste disposed | tons | Japan | 3,106 | 3,410 | 2,622 | 3,777 | 4,708 |
| | tons | China | 23 | 25 | 70 | 70 | 85 |
| Amount of waste reused/recycled | tons | Japan | 3,263 | 3,900 | 3,090 | 4,240 | 5,400 |
| | tons | China | 0 | 0 | 0 | 0 | 0 |
| Reuse/recycling rate | % | Japan | 78 | 81 | 85 | 87 | 89 |
| Amount of waste reused/ recycled without energy recovery | tons | Japan | 380 | 414 | 440 | 404 | 461 |
| | tons | China | 0 | 0 | 0 | 0 | 0 |
| Waste incinerated with energy recovery | tons | Japan | 2,883 | 3,486 | 2,651 | 3,836 | 4,939 |
| | tons | China | 0 | 0 | 0 | 0 | 0 |
| Waste incinerated without energy recovery | tons | Japan | 883 | 877 | 531 | 581 | 727 |
| | tons | China | 23 | 25 | 70 | 70 | 85 |
| Amount of waste disposed of as landfill | tons | Japan | 43 | 38 | 38 | 28 | 57 |
| | tons | China | 2 | 3 | 6 | 5 | 7 |
| Landfill rate | % | Japan | 1.0 | 0.8 | 1.0 | 0.6 | 0.9 |

Hazardous waste management

(FY)

| Indicators | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|------|-------|-------|-------|-------|-------|-------|
| Hazardous waste (Special management industrial waste) | tons | Japan | 1,163 | 1,830 | 1,227 | 1,722 | 2,177 |
| Hazardous waste disposed | tons | Japan | 643 | 961 | 811 | 1,219 | 1,400 |
| | tons | China | 12 | 13 | 33 | 33 | 34 |
| Amount of hazardous waste reused/recycled (without energy recovery) | tons | Japan | 12 | 26 | 26 | 31 | 83 |
| | tons | China | 0 | 0 | 0 | 0 | 0 |
| Hazardous waste incinerated (with energy recovery) | tons | Japan | 539 | 704 | 706 | 962 | 1,058 |
| | tons | China | 0 | 0 | 0 | 0 | 0 |
| Hazardous waste incinerated (without energy recovery) | tons | Japan | 100 | 249 | 101 | 258 | 342 |
| | tons | China | 12 | 13 | 33 | 33 | 34 |
| Amount of waste disposed of as landfill | tons | Japan | 1 | 1 | 3 | 1 | 1 |
| | tons | China | 0 | 0 | 0 | 0 | 0 |

As of July 7, 2022

Reuse and recycling of product containers and packaging materials

(FY)

| Item | Indicators | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---------------------|--------------|-------|-------|-------|-------|-------|-------|
| Containers and packaging materials used | Plastic | tons | Japan | 1,010 | 735 | 641 | 591 | 589 |
| | Paper | tons | Japan | 638 | 483 | 418 | 437 | 461 |
| | Glass(transparent) | tons | Japan | 40 | 38 | 37 | 40 | 295 |
| | Glass (brown) | tons | Japan | 8 | 8 | 8 | 8 | 22 |
| Amount consigned for reuse/recycling | Plastic | tons | Japan | 207 | 155 | 147 | 134 | 152 |
| | Paper | tons | Japan | 15 | 12 | 11 | 12 | 13 |
| | Glass (transparent) | tons | Japan | 10 | 8 | 7 | 9 | 81 |
| | Glass (brown) | tons | Japan | 2 | 2 | 2 | 3 | 8 |
| Reuse/recycling consignment fee | | thousand yen | Japan | 9,556 | 8,755 | 6,909 | 6,767 | 8,384 |

Water

As of July 7, 2022

Water consumption

(FY)

| Indicators | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------------------|-------------------------|-------|-------|-------|-------|-------|-------|
| Public water supply system | thousand m ³ | Japan | 1,389 | 1,315 | 1,263 | 1,217 | 1,357 |
| | thousand m ³ | China | 122 | 151 | 137 | 137 | 151 |
| Tap water | thousand m ³ | Japan | 280 | 254 | 246 | 237 | 266 |
| | thousand m ³ | China | 122 | 151 | 137 | 137 | 151 |
| Industrial water | thousand m ³ | Japan | 1,109 | 1,061 | 1,017 | 980 | 1,091 |
| | thousand m ³ | China | 0 | 0 | 0 | 0 | 0 |
| River and lake | thousand m ³ | Japan | 0 | 0 | 0 | 0 | 0 |
| | thousand m ³ | China | 0 | 0 | 0 | 0 | 0 |
| Sea | thousand m ³ | Japan | 0 | 0 | 0 | 0 | 0 |
| | thousand m ³ | China | 0 | 0 | 0 | 0 | 0 |
| Groundwater | thousand m ³ | Japan | 0 | 0 | 0 | 0 | 9 |
| | thousand m ³ | China | 0 | 0 | 0 | 0 | 0 |

Drainage

(FY)

| Indicators | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|-------------------------|-------|-------|-------|-------|-------|-------|
| Total drainage | thousand m ³ | Japan | 1,240 | 1,175 | 1,132 | 1,183 | 1,499 |
| | thousand m ³ | China | 31 | 42 | 46 | 48 | 44 |
| Sewer | thousand m ³ | Japan | 340 | 310 | 311 | 296 | 355 |
| | thousand m ³ | China | 31 | 42 | 46 | 48 | 44 |
| River | thousand m ³ | Japan | 900 | 864 | 821 | 887 | 1,145 |
| | thousand m ³ | China | 0 | 0 | 0 | 0 | 0 |
| Sea | thousand m ³ | Japan | 0 | 0 | 0 | 0 | 0 |
| | thousand m ³ | China | 0 | 0 | 0 | 0 | 0 |
| Groundwater | thousand m ³ | Japan | 0 | 0 | 0 | 0 | 0 |
| | thousand m ³ | China | 0 | 0 | 0 | 0 | 0 |

■ Chemical substance, prevention of air and water pollution

As of July 7, 2022

Chemical substance

(FY)

| Item | Indicators | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|-----------------|---------------------------------|------|-------|------|------|------|------|------|
| PRTR substances | Amount used | tons | Japan | 251 | 274 | 203 | 360 | 560 |
| | Amount released (Air) | tons | Japan | 35 | 43 | 34 | 73 | 36 |
| | Amount released (Public waters) | tons | Japan | 1 | 0 | 2 | 0 | 1 |
| | Amount released (Soil) | tons | Japan | 0 | 0 | 0 | 22 | 0 |
| | Amount transferred (Waste) | tons | Japan | 177 | 156 | 131 | 216 | 498 |
| | Amount transferred (Sewers) | tons | Japan | 0 | 0 | 0 | 0 | 0 |
| VOC | Amount used | tons | Japan | 780 | 491 | 511 | 667 | 564 |
| | Amount released (Air) | tons | Japan | 42 | 46 | 52 | 52 | 48 |

Prevention of air and water pollution

(FY)

| Item | Indicators | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------------------|--------------------|----------------------|-------|------|------|------|------|------|
| Emissions into the air | SOx | tons | Japan | 0 | 0 | 0 | 0 | 1 |
| | NOx | tons | Japan | 18 | 17 | 17 | 17 | 16 |
| | Particulate matter | tons | Japan | 1 | 2 | 2 | 2 | 2 |
| | Fluorocarbons | tons-CO ₂ | Japan | 199 | 599 | 456 | 444 | 355 |
| Emissions into water | BOD | tons | Japan | 5 | 5 | 5 | 4 | 5 |
| | COD | tons | Japan | 2 | 2 | 3 | 3 | 3 |
| | Nitrogen | tons | Japan | 6 | 6 | 7 | 6 | 6 |
| | Phosphorous | tons | Japan | 1 | 1 | 1 | 3 | 1 |

■ Management / Compliance

As of July 7, 2022

Management

(FY)

| Item | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|------|-------|------|------|------|------|------|
| Acquisition status of ISO 14001 certification | site | Japan | * | * | 1 | 2 | 3 |
| | | China | 0 | 0 | 0 | 0 | 0 |
| Green purchasing (Purchase of office supplies) | % | Japan | 72.1 | 73.1 | 74.5 | 73.0 | 67.8 |

*We obtained collective certification for the manufacturing and research bases of Shionogi & Co., Ltd.

On the occasion of the establishment of a manufacturing subsidiary, the collective certification was deregistered on March 25, 2019, and the three plants of the manufacturing subsidiary have obtained or are expected to obtain a new certification individually thereafter.

Compliance

(FY)

| Item | Unit | Scope | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|------|-------|------|------|------|------|------|
| Violation of environment-related laws and regulations | case | Japan | 2 | 1 | 0 | 1 | 1 |
| Amount of fines / violations | yen | Japan | 0 | 0 | 0 | 0 | 0 |
| Environment-related complaints | case | Japan | 2 | 1 | 0 | 0 | 3 |

Environmental protection costs

| Category | | Key activities | FY 2019 | | FY 2020 | | FY 2021 | |
|---------------------------------------|---|---|------------------------------------|------------------------------|------------------------------------|------------------------------|------------------------------------|------------------------------|
| | | | Investment (in thousand yen) | Cost (in thousand yen) | Investment (in thousand yen) | Cost (in thousand yen) | Investment (in thousand yen) | Cost (in thousand yen) |
| (1) Business area cost | | | 8,900 | 605,210 | 0 | 569,854 | 0 | 623,654 |
| Break down | ① Pollution prevention cost | Maintenance and management of the below · exhaust gas treatment equipment · wastewater treatment facilities · dichloromethane absorption and recovery equipment Measurement and analysis of wastewater, exhaust gas, etc. | 0 | 253,283 | 0 | 286,966 | 0 | 284,475 |
| | ② Global environment protection cost | Renewal of air-conditioning systems, refrigerators, boilers, etc. Operational improvement of manufacturing and air-conditioning facilities | 8,900 | 101,199 | 0 | 119,040 | 0 | 129,171 |
| | ③ Resource circulation cost | Recycling and treatment of the below · waste solvents · general waste materials · industrial waste | 0 | 250,728 | 0 | 163,847 | 0 | 210,008 |
| (2) Upstream/ downstream cost | | Consignment of reuse of containers and packaging materials | 0 | 7,804 | 0 | 6,768 | 0 | 6,743 |
| (3) Administration cost | | Maintenance and operation of environmental management systems Development and maintenance of green zones | 0 | 311,166 | 0 | 290,156 | 0 | 315,703 |
| (4) R&D cost | | | 0 | 0 | 0 | 0 | 0 | 0 |
| (5) Social activity cost | | Contribution to environmental organizations Communication with local communities | 0 | 719 | 0 | 472 | 0 | 449 |
| (6) Environmental remediation cost | | Penalty imposed for pollutants | 0 | 179 | 0 | 170 | 0 | 159 |
| Total | | | 8,900 | 925,360 | 0 | 867,419 | 0 | 946,709 |

Economic benefits from environmental protection (actual positive effects)

| Description | | FY 2019 | FY 2020 | FY 2021 |
|----------------|---|--------------------------------------|--------------------------------------|--------------------------------------|
| | | Amount of money (in thousand yen) | Amount of money (in thousand yen) | Amount of money (in thousand yen) |
| Benefit | Business income from recycling of waste | 6,033 | 9,940 | 7,327 |
| Cost reduction | Reduction in energy and water expenses | 20,444 | 31 | 4,969 |
| Total | | 26,477 | 9,972 | 12,296 |

Scope: Japan

Databook Sitedata

■ Shionogi Pharmaceutical Research Center

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|--------|--------|--------|--------|--------|
| Electricity | MWh | 28,594 | 28,450 | 28,599 | 27,529 | 28,053 |
| Gasoline | kL | 0 | 0 | 0 | 0 | 0 |
| Kerosene | kL | 0 | 0 | 0 | 0 | 0 |
| Light oil | kL | 0 | 0 | 0 | 0 | 0 |
| Heavy oil A | kL | 1 | 2 | 1 | 2 | 1 |
| Liquefied petroleum gas (LPG) | tons | 0 | 0 | 0 | 0 | 0 |
| Liquefied natural gas (LNG) | tons | 0 | 0 | 0 | 0 | 0 |
| Town gas | thousand Nm ³ | 2,551 | 2,402 | 2,366 | 2,167 | 2,313 |
| Water | thousand m ³ | 164 | 135 | 131 | 121 | 119 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------------------------|--------|--------|--------|--------|--------|
| CO ₂ emissions | tons-CO ₂ | 19,691 | 17,162 | 14,975 | 13,720 | 15,149 |
| Waste generated (excluding valuable resources) | tons | 488 | 427 | 390 | 374 | 405 |
| Waste put to landfill | tons | 15 | 13 | 12 | 6 | 7 |
| Drainage (sewers) | thousand m ³ | 164 | 135 | 131 | 121 | 119 |
| Drainage (public waters) | thousand m ³ | 0 | 0 | 0 | 0 | 0 |
| NO _x | tons | 2 | 2 | 2 | 2 | 2 |
| SO _x | tons | – | – | – | – | – |
| BOD | tons | 2 | 2 | 2 | 1 | 2 |
| COD | tons | – | – | – | – | – |

Substances subject to the PRTR Act

(kg)

| Substance name | Amount used | Amount released | | | Amount transferred | |
|-------------------------------|-------------|-----------------|---------------|------|-------------------------|--------|
| | | Atmosphere | Public waters | Soil | Outside operating sites | Sewers |
| <i>N,N</i> -Dimethylformamide | 1,740 | 0 | 0 | 0 | 1,740 | 0 |
| Acetonitrile | 8,033 | 360 | 0 | 0 | 7,673 | 0 |
| Chloroform | 8,968 | 374 | 0 | 0 | 8,594 | 0 |
| <i>n</i> -Hexane | 5,918 | 521 | 0 | 0 | 5,397 | 0 |

Shionogi Pharmaceutical Research Center



■ Shionogi CMC Research Innovation Center

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|--------|--------|-------|--------|--------|
| Electricity | MWh | 10,077 | 10,161 | 9,694 | 10,141 | 10,201 |
| Gasoline | kL | 0 | 0 | 0 | 0 | 0 |
| Kerosene | kL | 0 | 0 | 0 | 0 | 0 |
| Light oil | kL | 0 | 0 | 0 | 0 | 0 |
| Heavy oil A | kL | 0 | 0 | 0 | 0 | 0 |
| Liquefied petroleum gas (LPG) | tons | 0 | 0 | 0 | 0 | 0 |
| Liquefied natural gas (LNG) | tons | 0 | 0 | 0 | 0 | 0 |
| Town gas | thousand Nm ³ | 1,033 | 980 | 925 | 979 | 1,008 |
| Water | thousand m ³ | 85 | 82 | 77 | 82 | 88 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------------------------|-------|-------|-------|-------|-------|
| CO ₂ emissions | tons-CO ₂ | 7,232 | 6,396 | 5,357 | 5,466 | 5,890 |
| Waste generated (excluding valuable resources) | tons | 207 | 205 | 159 | 195 | 238 |
| Waste put to landfill | tons | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Drainage (sewers) | thousand m ³ | 63 | 60 | 57 | 60 | 65 |
| Drainage (public waters) | thousand m ³ | 0 | 0 | 0 | 0 | 0 |
| NO _x | tons | 0 | 1 | 1 | 0 | 1 |
| SO _x | tons | - | - | - | - | - |
| BOD | tons | 0 | 0 | 0 | 0 | 0 |
| COD | tons | - | - | - | - | - |

Substances subject to the PRTR Act

(kg)

| Substance name | Amount used | Amount released | | | Amount transferred | |
|-------------------------------|-------------|-----------------|---------------|------|-------------------------|--------|
| | | Atmosphere | Public waters | Soil | Outside operating sites | Sewers |
| <i>N,N</i> -Dimethylacetamide | 3,574 | 18 | 0 | 0 | 3,556 | 0 |
| Acetonitrile | 12,340 | 84 | 0 | 0 | 12,256 | 0 |
| Toluene | 3,722 | 19 | 0 | 0 | 3,704 | 0 |

Shionogi CMC Research Innovation Center



■ Aburahi Research Center

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|-------|-------|-------|-------|-------|
| Electricity | MWh | 2,580 | 2,518 | 2,449 | 2,459 | 2,590 |
| Gasoline | kL | 5 | 5 | 7 | 5 | 7 |
| Kerosene | kL | 2 | 1 | 2 | 1 | 2 |
| Light oil | kL | 0 | 0 | 0 | 0 | 0 |
| Heavy oil A | kL | 0 | 0 | 1 | 0 | 0 |
| Liquefied petroleum gas (LPG) | tons | 333 | 329 | 349 | 333 | 287 |
| Liquefied natural gas (LNG) | tons | 0 | 0 | 0 | 0 | 0 |
| Town gas | thousand Nm ³ | 0 | 0 | 0 | 0 | 0 |
| Water | thousand m ³ | 15 | 15 | 15 | 14 | 14 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------------------------|-------|-------|-------|-------|-------|
| CO ₂ emissions | tons-CO ₂ | 2,287 | 2,055 | 1,886 | 1,797 | 1,792 |
| Waste generated (excluding valuable resources) | tons | 48 | 44 | 48 | 44 | 48 |
| Waste put to landfill | tons | 2 | 1 | 2 | 1 | 1 |
| Drainage (sewers) | thousand m ³ | 0 | 0 | 0 | 0 | 0 |
| Drainage (public waters) | thousand m ³ | 13 | 12 | 11 | 11 | 10 |
| NO _x | tons | 3 | - | - | - | - |
| SO _x | tons | 0 | - | - | - | - |
| BOD | tons | 0 | 0 | 0 | 0 | 0 |
| COD | tons | 0 | 0 | 0 | 0 | 0 |

Substances to be registered under the PRTR Act: None

Aburahi Research Center



■ Settsu Plant

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|--------|--------|--------|--------|--------|
| Electricity | MWh | 17,274 | 14,884 | 15,496 | 15,767 | 16,570 |
| Gasoline | kL | 1 | 1 | 2 | 2 | 2 |
| Kerosene | kL | 0 | 0 | 0 | 0 | 0 |
| Light oil | kL | 2 | 2 | 8 | 6 | 3 |
| Heavy oil A | kL | 0 | 0 | 0 | 0 | 0 |
| Liquefied petroleum gas (LPG) | tons | 0 | 0 | 0 | 0 | 0 |
| Liquefied natural gas (LNG) | tons | 0 | 0 | 0 | 0 | 0 |
| Town gas | thousand Nm ³ | 2,781 | 2,278 | 2,039 | 1,816 | 1,940 |
| Water | thousand m ³ | 140 | 140 | 127 | 116 | 98 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------------------------|--------|--------|-------|-------|--------|
| CO ₂ emissions | tons-CO ₂ | 14,618 | 11,222 | 9,869 | 9,191 | 10,270 |
| Waste generated (excluding valuable resources) | tons | 276 | 266 | 300 | 282 | 316 |
| Waste put to landfill | tons | 0.8 | 0.8 | 0.8 | 0.6 | 0.6 |
| Drainage (sewers) | thousand m ³ | 98 | 102 | 110 | 101 | 83 |
| Drainage (public waters) | thousand m ³ | 0 | 0 | 0 | 0 | 0 |
| NO _x | tons | 3 | 2 | 2 | 2 | 2 |
| SO _x | tons | - | - | - | - | - |
| BOD | tons | 1 | 1 | 1 | 1 | 1 |
| COD | tons | 1 | 2 | 2 | 2 | 2 |

Substances subject to the PRTR Act

(kg)

| Substance name | Amount used | Amount released | | | Amount transferred | |
|----------------|-------------|-----------------|---------------|------|-------------------------|--------|
| | | Atmosphere | Public waters | Soil | Outside operating sites | Sewers |
| Acetonitrile | 2,590 | 0 | 0 | 0 | 2,590 | 0 |

Settsu Plant



■ Kanegasaki Plant

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|--------|--------|--------|--------|--------|
| Electricity | MWh | 13,835 | 13,745 | 16,672 | 14,995 | 15,814 |
| Gasoline | kL | 4 | 4 | 3 | 4 | 5 |
| Kerosene | kL | 0 | 0 | 0 | 0 | 0 |
| Light oil | kL | 0 | 1 | 0 | 0 | 1 |
| Heavy oil A | kL | 48 | 80 | 37 | 55 | 21 |
| Liquefied petroleum gas (LPG) | tons | 13 | 12 | 11 | 11 | 11 |
| Liquefied natural gas (LNG) | tons | 8,067 | 7,932 | 7,113 | 7,876 | 8,330 |
| Town gas | thousand Nm ³ | 0 | 0 | 0 | 0 | 0 |
| Water | thousand m ³ | 826 | 818 | 795 | 726 | 756 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------------------------|--------|--------|--------|--------|--------|
| CO ₂ emissions | tons-CO ₂ | 29,541 | 28,869 | 28,148 | 29,286 | 29,823 |
| Waste generated (excluding valuable resources) | tons | 1,881 | 2,120 | 1,372 | 1,883 | 2,545 |
| Waste put to landfill | tons | 22 | 21 | 16 | 19 | 13 |
| Drainage (sewers) | thousand m ³ | 0 | 0 | 0 | 0 | 0 |
| Drainage (public waters) | thousand m ³ | 743 | 740 | 704 | 735 | 934 |
| NO _x | tons | 10 | 12 | 12 | 12 | 12 |
| SO _x | tons | 0 | 0 | 0 | 0 | 0 |
| BOD | tons | 1 | 1 | 1 | 1 | 1 |
| COD | tons | - | - | - | - | - |

Substances subject to the PRTR Act

(kg)

| Substance name | Amount used | Amount released | | | Amount transferred | |
|---|-------------|-----------------|---------------|------|-------------------------|--------|
| | | Atmosphere | Public waters | Soil | Outside operating sites | Sewers |
| <i>N,N</i> -Dimethylacetamide | 3,597 | 0 | 0 | 0 | 3,597 | 0 |
| <i>N,N</i> -Dimethylformamide | 6,372 | 43 | 0 | 0 | 6 | 0 |
| Acetonitrile | 145,954 | 0 | 0 | 0 | 145,954 | 0 |
| Dichloromethane (methylene chloride) | 175,813 | 32,577 | 1 | 0 | 129,228 | 0 |
| Tributylamine | 4,128 | 0 | 0 | 0 | 0 | 0 |
| Pyridine | 4,484 | 0 | 0 | 0 | 1,931 | 0 |

Kanegasaki Plant



■ Tokushima Plant

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|-------|-------|-------|-------|-------|
| Electricity | MWh | 4,521 | 5,065 | 4,646 | 5,444 | 7,306 |
| Gasoline | kL | 0 | 0 | 0 | 0 | 0 |
| Kerosene | kL | 0 | 0 | 0 | 0 | 0 |
| Light oil | kL | 0 | 0 | 0 | 0 | 0 |
| Heavy oil A | kL | 0 | 0 | 0 | 0 | 0 |
| Liquefied petroleum gas (LPG) | tons | 0 | 0 | 0 | 0 | 0 |
| Liquefied natural gas (LNG) | tons | 0 | 0 | 0 | 0 | 0 |
| Town gas | thousand Nm ³ | 401 | 388 | 365 | 449 | 524 |
| Water | thousand m ³ | 143 | 112 | 105 | 143 | 200 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------------------------|-------|-------|-------|-------|-------|
| CO ₂ emissions | tons-CO ₂ | 3,270 | 3,560 | 3,289 | 3,266 | 5,393 |
| Waste generated (excluding valuable resources) | tons | 482 | 692 | 690 | 1,353 | 1,464 |
| Waste put to landfill | tons | 0.3 | 1.4 | 6.1 | 0.0 | 4.7 |
| Drainage (sewers) | thousand m ³ | 0 | 0 | 0 | 0 | 0 |
| Drainage (public waters) | thousand m ³ | 143 | 112 | 105 | 140 | 200 |
| NO _x | tons | - | - | - | - | - |
| SO _x | tons | - | - | - | - | - |
| BOD | tons | 0 | 0 | 0 | 0 | 1 |
| COD | tons | 0 | 0 | 1 | 0 | 1 |

Substances subject to the PRTR Act

(kg)

| Substance name | Amount used | Amount released | | | Amount transferred | |
|---|-------------|-----------------|---------------|------|-------------------------|--------|
| | | Atmosphere | Public waters | Soil | Outside operating sites | Sewers |
| <i>N,N</i> -Dimethylacetamide | 10,213 | 0 | 0 | 0 | 10,213 | 0 |
| <i>N,N</i> -Dimethylformamide | 4,753 | 24 | 0 | 0 | 4,729 | 0 |
| Acetonitrile | 137,381 | 1,374 | 0 | 0 | 136,007 | 0 |
| Dichloromethane (methylene chloride) | 17,756 | 355 | 0 | 0 | 17,401 | 0 |
| Toluene | 2,122 | 21 | 0 | 0 | 2,101 | 0 |

Tokushima Plant



■ UMN Pharma Inc. Akita Plant

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|------|------|---------|-------|-------|
| Electricity | MWh | - | - | (1,755) | 1,827 | 1,774 |
| Gasoline | kL | - | - | - | 0 | 0 |
| Kerosene | kL | - | - | - | 0 | 0 |
| Light oil | kL | - | - | - | 0 | 0 |
| Heavy oil A | kL | - | - | - | 0 | 0 |
| Liquefied petroleum gas (LPG) | tons | - | - | - | 0 | 0 |
| Liquefied natural gas (LNG) | tons | - | - | - | 0 | 0 |
| Town gas | thousand Nm ³ | - | - | (264) | 291 | 238 |
| Water | thousand m ³ | - | - | - | 10 | 8 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------------------------|------|------|---------|-------|-------|
| CO ₂ emissions | tons-CO ₂ | - | - | (1,174) | 1,510 | 1,402 |
| Waste generated (excluding valuable resources) | tons | - | - | - | 4 | 5 |
| Waste put to landfill | tons | - | - | - | 0.4 | 0.0 |
| Drainage (sewers) | thousand m ³ | - | - | - | 10 | 8 |
| Drainage (public waters) | thousand m ³ | - | - | - | 0 | 0 |

Substances to be registered under the PRTR Act: None

Figures in parentheses are figures before becoming a subsidiary.

UMN Pharma Inc. Akita Plant



■ UMN Pharma Inc. Yokohama Research Center

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|------|------|-------|------|------|
| Electricity | MWh | - | - | (178) | 189 | 185 |
| Gasoline | kL | - | - | - | 0 | 0 |
| Kerosene | kL | - | - | - | 0 | 0 |
| Light oil | kL | - | - | - | 0 | 0 |
| Heavy oil A | kL | - | - | - | 0 | 0 |
| Liquefied petroleum gas (LPG) | tons | - | - | (3) | 0 | 0 |
| Liquefied natural gas (LNG) | tons | - | - | - | 0 | 0 |
| Town gas | thousand Nm ³ | - | - | - | 0 | 0 |
| Water | thousand m ³ | - | - | - | 1 | 1 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------------------------|------|------|------|------|------|
| CO ₂ emissions | tons-CO ₂ | - | - | (89) | 83 | 82 |
| Waste generated (excluding valuable resources) | tons | - | - | - | 1 | 1 |
| Waste put to landfill | tons | - | - | - | 0.1 | 0.3 |
| Drainage (sewers) | thousand m ³ | - | - | - | 1 | 1 |
| Drainage (public waters) | thousand m ³ | - | - | - | 0 | 0 |

Substances to be registered under the PRTR Act: None

Figures in parentheses are figures before becoming a subsidiary.

■ Itami Plant

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|--------------------------|------|------|---------|---------|-------|
| Electricity | MWh | - | - | (6,524) | (6,561) | 6,797 |
| Gasoline | kL | - | - | - | - | 0 |
| Kerosene | kL | - | - | - | - | 0 |
| Light oil | kL | - | - | - | - | 0 |
| Heavy oil A | kL | - | - | - | - | 0 |
| Liquefied petroleum gas (LPG) | tons | - | - | - | - | 0 |
| Liquefied natural gas (LNG) | tons | - | - | - | - | 0 |
| Town gas | thousand Nm ³ | - | - | (798) | (775) | 875 |
| Water | thousand m ³ | - | - | - | - | 77 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------------------------|------|------|---------|---------|-------|
| CO ₂ emissions | tons-CO ₂ | - | - | (4,006) | (3,861) | 4,389 |
| Waste generated (excluding valuable resources) | tons | - | - | - | - | 116 |
| Waste put to landfill | tons | - | - | - | - | 30.0 |
| Drainage (sewers) | thousand m ³ | - | - | - | - | 74 |
| Drainage (public waters) | thousand m ³ | - | - | - | - | 0 |
| NO _x | tons | - | - | - | - | - |
| SO _x | tons | - | - | - | - | - |
| BOD | tons | - | - | - | - | 0 |
| COD | tons | - | - | - | - | 0 |

Substances subject to the PRTR Act

(kg)

| Substance name | Amount used | Amount released | | | Amount transferred | |
|----------------|-------------|-----------------|---------------|------|-------------------------|--------|
| | | Atmosphere | Public waters | Soil | Outside operating sites | Sewers |
| Acetonitrile | 1,000 | 0 | 0 | 0 | 1,000 | 0 |

Figures in parentheses are figures before becoming a subsidiary.

■ C&O Pharmaceutical Technology (Holdings) Ltd. Nanjing Plant

Energy and resource consumption

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------|-------------------------|-------|-------|-------|-------|-------|
| Electricity | MWh | 6,998 | 7,636 | 9,221 | 8,405 | 8,266 |
| Steam | tons | – | – | 4,406 | 8,159 | 5,314 |
| Coal | tons | 0 | 0 | 0 | 0 | 0 |
| Liquefied petroleum gas (LPG) | tons | 462 | 489 | 220 | 3 | 3 |
| Water | thousand m ³ | 122 | 151 | 137 | 137 | 151 |

Impact released

(FY)

| Item | Unit | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------------------------|-------------------------|-------|-------|-------|-------|-------|
| CO ₂ emissions | tons-CO ₂ | 7,927 | 6,304 | 7,368 | 6,952 | 6,244 |
| Waste generated | tons | 23 | 25 | 70 | 70 | 85 |
| Waste put to landfill | tons | 2 | 3 | 6 | 5 | 7 |
| Drainage (sewers) | thousand m ³ | 31 | 42 | 46 | 48 | 44 |
| Drainage (public waters) | thousand m ³ | 0 | 0 | 0 | 0 | 0 |

Substances subject to the PRTR Act: Not applicable

C&O Pharmaceutical Technology (Holdings) Ltd. Nanjing Plant





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