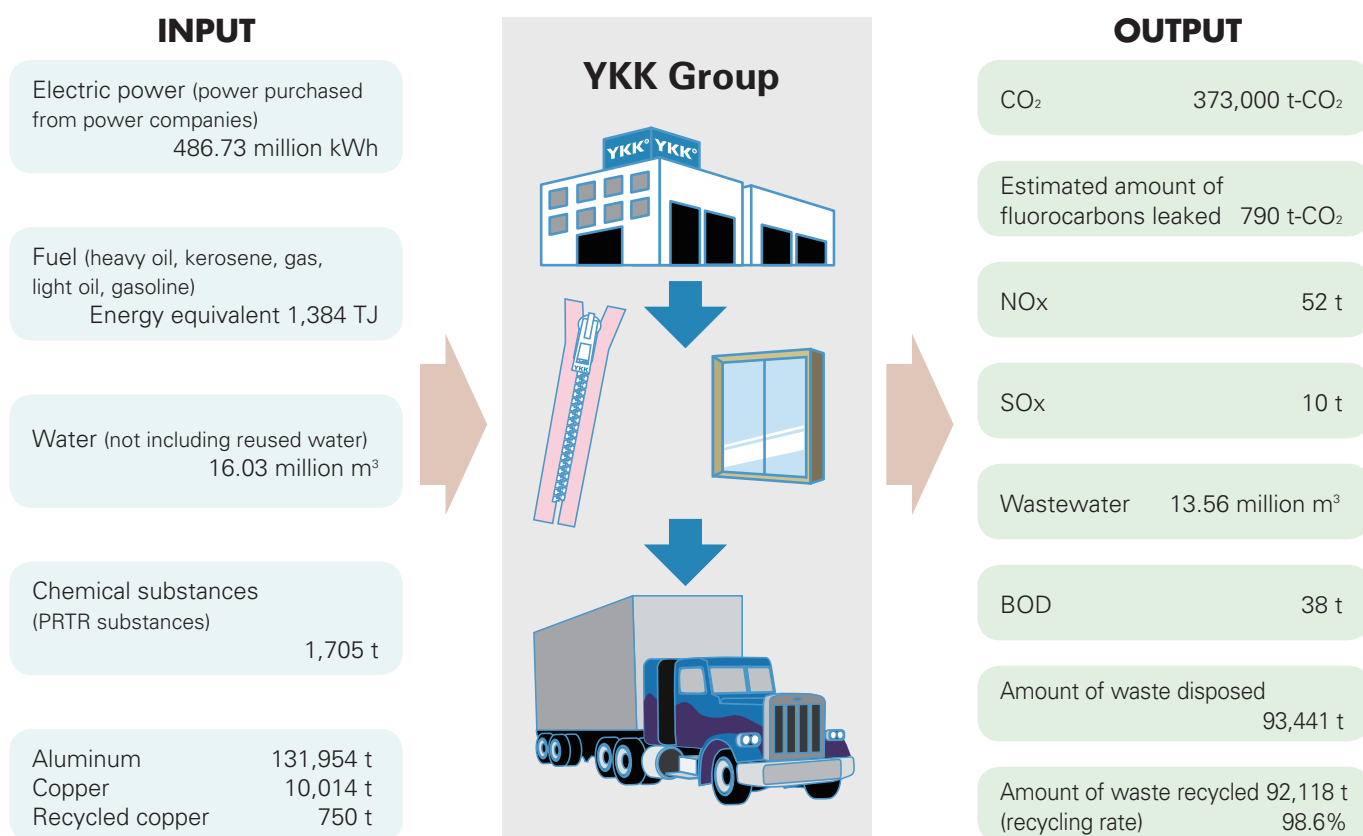
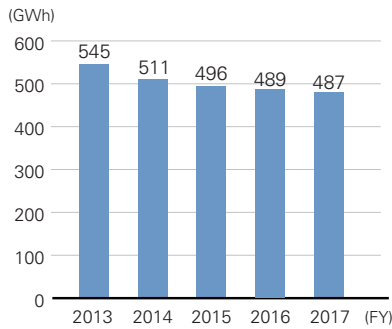


Environmental impact mass-balance of YKK Group plants/offices in Japan (fiscal 2017)

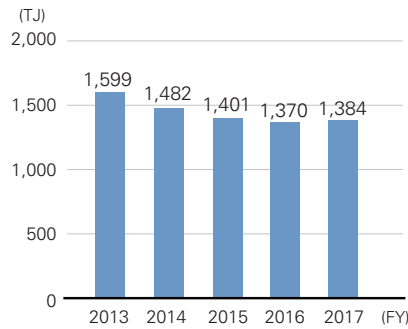


Changes in energy use by type (all YKK Group facilities in Japan)

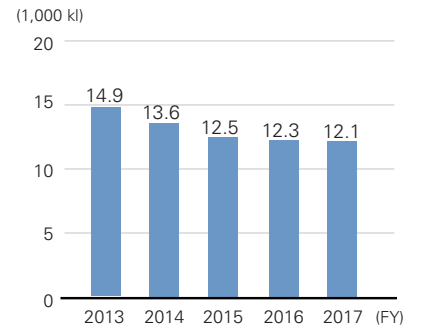
Electric power



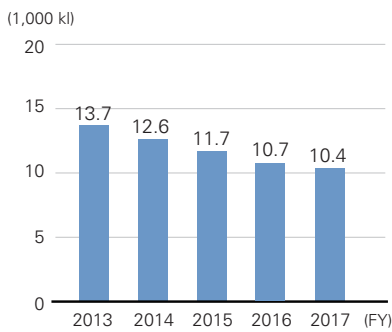
Fuel total (energy equivalent)



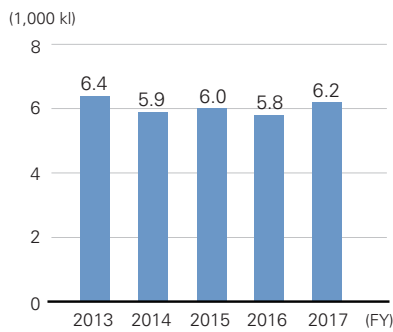
Heavy fuel oil A



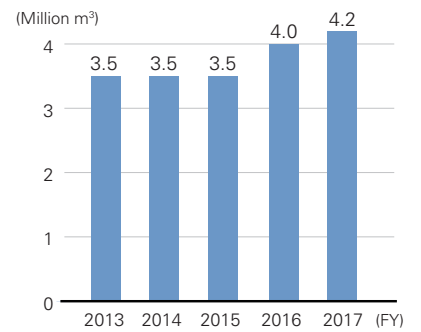
Kerosene



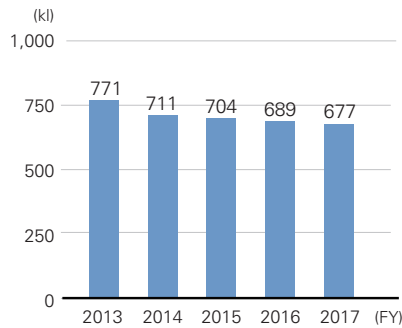
LPG



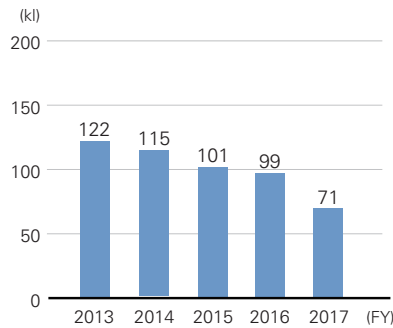
Natural gas



Light oil

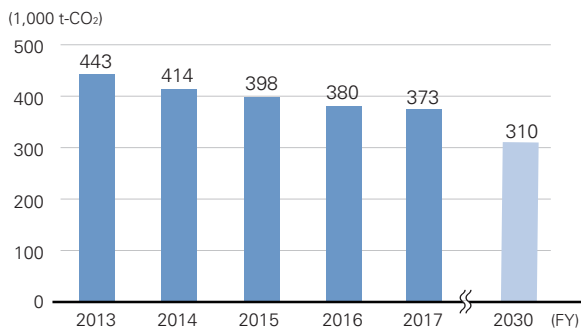


Gasoline



Change in CO₂ emissions (all YKK Group facilities in Japan)

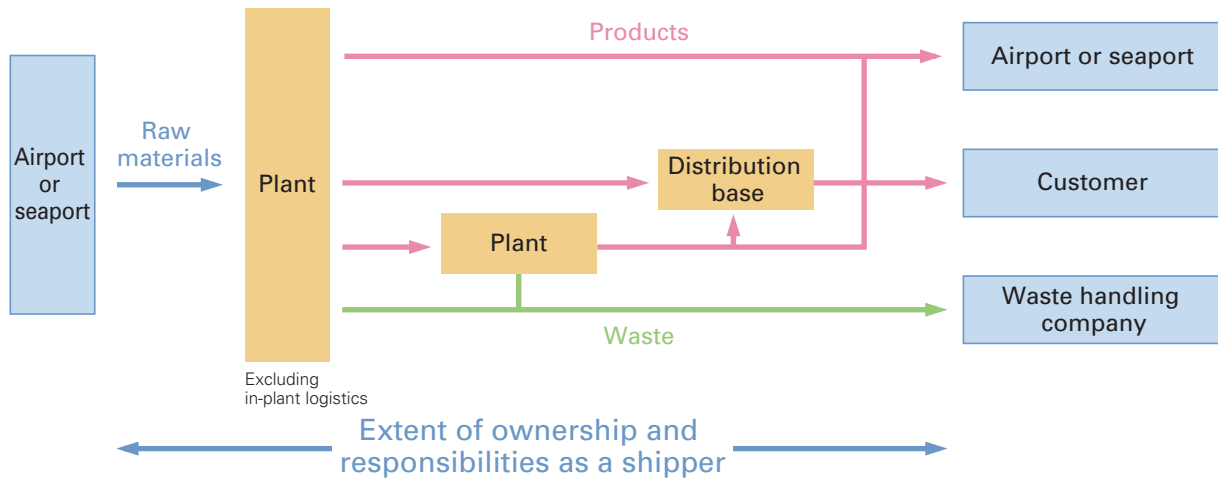
CO₂ emissions performance



Note: Based on the YKK Group's Greenhouse Gas (GHG) Calculation Rules, which require the most recent official conversion factor for CO₂/kWh be used (the factor changes to reflect market changes). The Group's CO₂ emissions in fiscal 2017 were down 15.8% compared with fiscal 2013.

Please see page 25 for the YKK Group Greenhouse Gas (GHG) Calculation Rules.

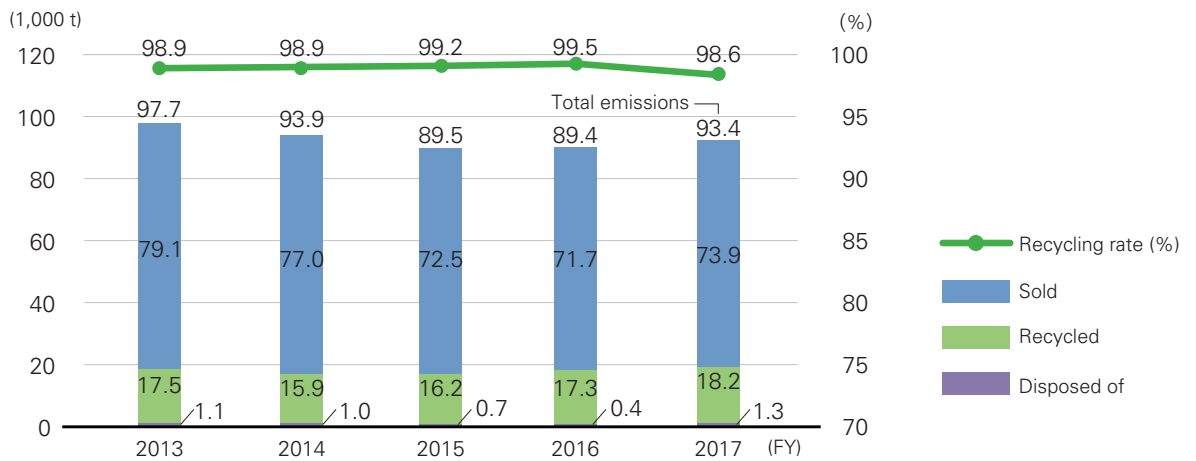
Extent of responsibility and results related to transportation amounts as a shipper



	Fiscal 2017	Specified shipper
YKK	12.95 million ton-km	No
YKK AP	186.23 million ton-km	Yes

Specified shipper: A company that consigns cargo transport of 30 million ton-km or more a year within its business operations

Changes in waste production and recycling rate (all YKK Group facilities in Japan)



Environmental data for YKK Group main production bases in Japan (fiscal 2017 results)

	Electric power (1,000 kWh)	Fuel (GJ)	CO ₂ (t-CO ₂)	Total emissions (t)	Amount recycled (t)	Recycling rate (%)	Amount of water used (1,000 m ³)
YKK Corporation Kurobe Plant	86,728	158,939	66,332	4,523	4,523	100	4,053
YKK Corporation Kurobe Makino Plant	30,034	23,177	20,710	1,717	1,717	100	788
YKK AP Inc. Kurobe Plant	96,304	491,846	94,491	17,533	17,533	100	4,289
YKK AP Inc. Kurobe Ekko Plant	17,825	24,790	12,720	3,421	3,421	100	491
YKK AP Inc. Kurobe Ogyu Plant	15,896	16,664	11,137	2,407	2,407	100	244
YKK AP Inc. Namerikawa Plant	13,400	31,155	10,646	3,113	3,113	100	207
YKK AP Inc. Tohoku Plant	79,444	232,457	58,705	19,447	19,382	99.7	3,070
YKK AP Inc. Shikoku Plant	46,502	190,574	33,830	8,486	8,486	100	812
YKK AP Inc. Kyushu Plant	53,325	191,466	37,011	10,277	10,246	99.7	1,901

Atmosphere

Equipment	Plant	Soot and dust [g/Nm ³]					Nitrogen oxides [ppm]				
		National emissions standard	Municipal agreed value	Voluntary emissions standard	Highest value measured in fiscal 2017	Assessment	National emissions standard	Municipal agreed value	Voluntary emissions standard	Highest value measured in fiscal 2017	Assessment
Boilers	Tohoku	0.25	0.20	0.19	0.043	Acceptable	230	230	100	81	Acceptable
	Kurobe	0.30	0.15	0.10	Below 0.01	Acceptable	180	—	100	89	Acceptable
	Shikoku	0.10	—	0.01	Below 0.0048	Acceptable	150	—	75	43	Acceptable
	Kyushu	0.30	—	0.020	Below 0.01	Acceptable	180	—	120	87	Acceptable
Foundry melting furnaces	Tohoku	0.30	0.10	0.09	0.026	Acceptable	200	200	80	59	Acceptable
	Kurobe	0.20	—	0.15	0.02	Acceptable	180	—	120	54	Acceptable
	Shikoku	0.20	—	0.02	0.005	Acceptable	200	—	100	88	Acceptable
	Kyushu	0.30	0.30	0.10	0.01	Acceptable	180	170	120	31	Acceptable
Foundry heat treatment furnaces	Tohoku	0.25	—	0.23	0.001	Acceptable	160	160	145	120	Acceptable
Foundry holding furnaces	Kurobe	0.20	—	0.13	Below 0.01	Acceptable	180	—	130	120	Acceptable
	Shikoku	0.20	—	0.02	Below 0.0028	Acceptable	180	—	170	100	Acceptable
	Kyushu	0.20	0.01	0.008	Below 0.005	Acceptable	150	150	120	70	Acceptable
Extrusion heat treatment furnaces	Tohoku	0.25	—	0.23	Below 0.001	Acceptable	180	180	65	59	Acceptable
	Kurobe	0.20	—	0.1	Below 0.02	Acceptable	180	—	90	50	Acceptable
	Shikoku	0.20	—	0.02	0.012	Acceptable	180	—	75	53	Acceptable
	Kyushu	0.2~0.25	0.03	0.02	Below 0.01	Acceptable	180	150	100	78	Acceptable
Surface treatment drying furnaces	Tohoku	0.25	—	0.23	0.003	Acceptable	230	230	55	43	Acceptable
	Kurobe	0.20	—	0.10	Below 0.01	Acceptable	230	—	50	45	Acceptable
	Shikoku	0.20	—	0.02	Below 0.0068	Acceptable	230	—	75	47	Acceptable
	Kyushu	0.20	0.01	0.008	Below 0.005	Acceptable	230	150	100	24	Acceptable

Water quality

Unit: mg/l (except pH)

Item	Plant	National water emission standard	Prefectural water emission standard	Municipal agreed value	Voluntary management standard	Highest value measured in fiscal 2017	Assessment
pH	Tohoku	5.8–8.6* ¹	5.8–8.6* ¹	6.5–8.5	6.6–8.1	Min. 6.7 Max. 8.1	Acceptable
	Saitama MADO (window)	5.8–8.6* ¹	5.8–8.6* ¹	–	6.1–8.3	Min. 7.3 Max. 7.7	Acceptable
	Kurobe	5.0–9.0* ²	5.0–9.0* ²	5.8–8.6* ¹	6.2–7.8	Min. 7.2 Max. 7.7	Acceptable
	Shikoku	5.8–8.6* ¹	5.8–8.6	–	6.0–8.4	Min. 6.8 Max. 7.7	Acceptable
	Kyushu	5.0–9.0* ²	5.0–9.0	5.8–8.6	6.3–8.1	Min. 6.7 Max. 7.4	Acceptable
BOD	Tohoku	120* ¹	120	20	13.3	9.7	Acceptable
	Saitama MADO (window)	120* ¹	25	–	3.4	2.5	Acceptable
	Kurobe	120* ¹	20	10	4	6.0	Acceptable (Exceeded the voluntary management standard)
	Shikoku	120* ¹	30	–	20	18.0	Acceptable
COD	Kurobe	120* ²	–	20	9.1	8.6	Acceptable
	Saitama MADO (window)	–	160	–	16	7.2	Acceptable
	Shikoku	120* ²	25	–	15	12.0	Acceptable
	Kyushu	120* ²	20	20	15	14.8	Acceptable
Suspended solids	Tohoku	150	150	20	3.3	3.1	Acceptable
	Saitama MADO (window)	150	60	–	6	5.8	Acceptable
	Kurobe	150	90	50	10	14.0	Acceptable (Exceeded the voluntary management standard)
	Shikoku	150	25	–	5	4.0	Acceptable
	Kyushu	150	20	20	8	4.0	Acceptable
Oil	Tohoku	5	5	2	1	0.5	Acceptable
	Saitama MADO (window)	5	5	–	–	Below 0.5	Acceptable
	Kurobe	5	–	3	Below 0.5	Below 0.5	Acceptable
	Shikoku	5	3	–	2	Below 1	Acceptable
	Kyushu	5	5	5	1	1	Acceptable
Cyanide	Kurobe	1	–	0.1	0.02	0.02	Acceptable
Nitrogen	Saitama MADO (window)	–	120	–	40	32.0	Acceptable
	Shikoku	–	60	–	25	22.0	Acceptable
	Kyushu	–	60	–	30	17.0	Acceptable
Phosphorus	Saitama MADO (window)	–	16	–	2	1.1	Acceptable
	Shikoku	–	8	–	0.8	0.07	Acceptable
	Kyushu	–	8	–	0.5	0.03	Acceptable
Hexavalent chromium compounds	Kurobe	0.5	–	0.1	Below 0.02	Below 0.02	Acceptable

* 1 Standard when discharging into rivers * 2 Standard when discharging into ocean

Groundwater inspections (Kurobe area)

	Substance	Unit	Environmental standard*	Measurement results Fiscal 2017	Assessment
Volatile organic compounds	Dichloromethane	mg/l	0.02 or less	Below 0.002	Acceptable
	Carbon tetrachloride	mg/l	0.002 or less	Below 0.0002	Acceptable
	1,1-Dichloroethylene	mg/l	0.02 or less	Below 0.002	Acceptable
	Cis-1,2-Dichloroethylene	mg/l	0.04 or less	Below 0.004	Acceptable
	1,1,1-Trichloroethane	mg/l	1 or less	Below 0.0005	Acceptable
	Trichloroethylene	mg/l	0.03 or less	Below 0.002	Acceptable
	Tetrachloroethylene	mg/l	0.01 or less	Below 0.0005	Acceptable
Heavy metals	Cadmium	mg/l	0.01 or less	Below 0.001	Acceptable
	Cyanide	mg/l	Not detected	Below 0.1	Acceptable
	Lead	mg/l	0.01 or less	Below 0.005	Acceptable
	Hexavalent chromium	mg/l	0.05 or less	Below 0.005	Acceptable
	Selenium	mg/l	0.01 or less	Below 0.002	Acceptable
	Fluorine	mg/l	0.8 or less	Below 0.1	Acceptable
	Boron	mg/l	1 or less	Below 0.1	Acceptable

* Environmental standard: Keeping the amount less than this standard is desirable for preservation of human health and protection of the human environment

Noise

Unit: db

Plant*	Type	Prefectural standard	Municipal agreement on pollution control	Voluntary standard	Highest value measured in fiscal 2017	Assessment
Tohoku	Daytime (8:00–19:00)	—	60	60	56.9	Acceptable
Tohoku	Morning (6:00–8:00) Evening (19:00–22:00)	—	55	55	54.8	Acceptable
Tohoku	Night-time (22:00–6:00)	—	50	50	49.9	Acceptable
Kurobe	Daytime (8:00–19:00)	70	70	70	64	Acceptable
Kurobe	Morning (6:00–8:00) Evening (19:00–22:00)	65	55	55	50.3	Acceptable
Kurobe	Night-time (22:00–6:00)	63	50	50	48	Acceptable
Shikoku	Daytime (8:00–19:00)	70	70	65	56	Acceptable
Shikoku	Morning (6:00–8:00) Evening (19:00–22:00)	65	65	60	58	Acceptable
Shikoku	Night-time (22:00–6:00)	60	65	55	54	Acceptable

Note: The Kyushu Plant is outside the designated area

Dioxins

Equipment	Plant	Atmosphere (unit: ng/TEQ/m ³ N)		Assessment	Water quality (unit: pg-TEQ/m ³ N)		Assessment
		Emissions standard	Highest value measured in fiscal 2017		Emissions standard	Highest value measured in fiscal 2017	
Aluminum melting furnaces	Tohoku	5	0.00000093	Acceptable	—	—	—
	Kurobe	5	0.098	Acceptable	—	—	—
	Shikoku	5	0.0000011	Acceptable	—	—	—
	Kyushu	5	0.048	Acceptable	—	—	—
Biomass boiler	Tohoku	5	0.000039	Acceptable	—	—	—

PRTR calculations (YKK Group main production bases in Japan)

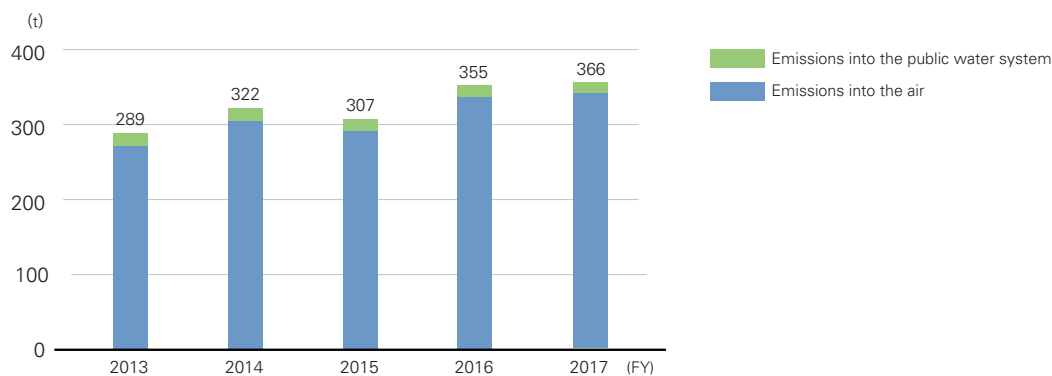
Period: April 2017–March 2018

Unit: t (Dioxins: mg-TEQ)

Substance number	Substance	Volume handled	Atmospheric emissions	Public water emissions	Soil emissions (kg/y)	Landfill volume (kg/y)	Transfer amount to sewer system (kg/y)	Transfer amount (kg/y)	Consumption (kg/y)	Transformed amount (kg/y)
1	Zinc compounds (water-soluble)	3.35	0.04	0.00	0	0	0	0.64	0.00	2.66
31	Antimony	5.12	0.00	0.00	0	0	0	0.20	4.92	0.00
53	Ethylbenzene	13.54	13.24	0.00	0	0	0	0.07	0.00	0.19
80	Xylene	150.15	27.54	0.00	0	0	0	0.08	14.44	89.60
87	Chromium and trivalent chromium compounds	2.04	0.00	0.00	0	0	0	0.12	1.92	0.00
88	Hexavalent chromium	0.86	0.00	0.00	0	0	0	0.07	0.03	0.00
132	Cobalt and cobalt compounds	12.19	0.43	0.80	0	0	0	0.68	10.29	0.00
144	Inorganic cyanide compounds	28.86	0.06	0.03	0	0	0	5.06	0.00	23.71
232	N, N-dimethylformamide	178.27	178.27	0.00	0	0	0	0.00	0.00	0.00
258	Hexamethylenetetramine	1.61	0.00	0.03	0	0	0	1.26	0.00	0.32
259	Tetramethylthiuram disulfide	3.94	0.00	0.00	0	0	0	0.60	0.60	2.74
277	Triethylamine	9.39	7.00	2.35	0	0	0	0.00	0.04	0.00
296	1,2,4-Trimethylbenzene	127.61	7.75	0.00	0	0	0	0.00	16.37	103.49
300	Toluene	106.14	99.12	0.00	0	0	0	0.67	0.00	1.69
308	Nickel	82.71	0.01	0.00	0	0	0	0.11	77.53	3.59
309	Nickel compounds	29.40	0.00	2.06	0	0	0	1.45	24.09	1.80
355	Bis (2-ethylhexyl) phthalate	422.18	0.00	0.00	0	0	0	1.76	420.43	0.00
405	Boron compounds	15.41	0.18	10.50	0	0	0	3.11	1.63	0.00
412	Manganese and manganese compounds	174.70	0.00	0.00	0	0	0	5.62	158.61	0.00
438	Methylnaphthalene	126.14	0.67	0.00	0	0	0	0.92	0.00	124.54
448	Methylenebis (4,1-phenylene) diisocyanate	192.39	0.00	0.00	0	0	0	1.86	190.53	0.00
461	Triphenyl phosphate	9.76	0.00	0.29	0	0	0	0.00	9.46	0.00
243	Dioxins (mg-TEQ)	0.00	8.96	0.00	0	0	0	0.00	0.00	0.00

- Notes: 1. Calculations for substances of which we handle 1 t or more per year (0.5 t or more per year for Class I Designated Chemical Substances, with the exception of dioxins) at our domestic plants
 2. Consumption: the amount consumed as a raw material and the amount contained in products or the amount sold and recycled
 3. Transformed amount: the amount that has been transformed into other substances by incineration, reactive processing and other methods

Emissions of PRTR Substances (excluding dioxin) (YKK Group main production bases in Japan)



Guidelines for Calculating and Reporting Fiscal 2017 GHG Emissions from YKK Group Bases in Japan

The YKK Group hereby establishes its guidelines to ensure the appropriate calculation and reporting of greenhouse gas (GHG) emissions from its bases in Japan. Specifically, the Group shall calculate its GHG emissions based on the Monitoring and Reporting Guidelines Ver. 4.2 of the Japanese Voluntary Emissions Trading Scheme (JVETS) announced on October 5, 2010, while also adopting benchmark figures set forth in Japan's Energy Conservation Law for the per-unit calorific value and CO₂ emission coefficient. Detailed rules for calculating GHG emissions from the YKK Group's bases in Japan follow.

1. List the Group's bases of operations along with the outline of each base's business activities
2. List the scope of calculation, identify persons responsible for calculation and reporting, specify type of business activities and minor emission sources in a summary calculation table for each base
3. Prepare a calculation report for each base Formulas used for calculating CO₂ emissions are presented below.

3.1 Fuel usage

CO₂ emissions (t-CO₂) = fuel consumption (unit) × per-unit energy value (GJ/unit) × CO₂ emission coefficient (t-C/GJ) × 44/12

3.2 Use of electricity purchased from utilities

CO₂ emissions (t-CO₂) = electricity consumption (kWh) × CO₂ emission coefficient (t-CO₂/kWh)

3.3 Use of heat (hot or cold water) supplied by heat suppliers

CO₂ emissions (t-CO₂) = heat consumption (GJ) × CO₂ emission coefficient (t-CO₂/GJ)

3.4 Use of fuel recycled from waste (fuel oil produced from waste oil)

CO₂ emissions (t-CO₂) = oil consumption (kl) × CO₂ emission coefficient (t-CO₂/kl)

3.5 Emissions from industrial process

CO₂ emissions (t-CO₂) = Material consumption (t) × CO₂ emission coefficient of said material (t-CO₂/t)

Emission sources	List all bases of operations and facilities (including inactive facilities) during the fiscal year as subject to calculation. Assign a unique emission source number to each emission source as an individual unit of equipment. However, assign emission source numbers for gas cylinders used in industrial processes and CO ₂ fire extinguishers by unit area. In addition, number transportation vehicles used within plant premises by type of fuel used.
Activity data	Base activity data on figures presented on purchasing slips and do not round up or down. However, figures for fuel consumption (presented in liters or kilograms) can be rounded up to the first decimal place when required by inhouse accounting systems. Total the CO ₂ emissions from each base to obtain the emissions for the overall YKK Group, and round off the result to the nearest whole number.
Activity data of office facilities	In cases where the accurate assessment of activity data is not readily available, calculate such data from utility costs based on nationwide average unit prices.
Fuel	Calculate per-unit calorific value of fuel using benchmark figures stipulated by the Energy Conservation Law.
Gasoline and light oil	Vehicles used for sales activities and those used for external transportation are not subject to calculation. However, in cases where it is difficult to determine if vehicle use is restricted to in-plant transportation, such vehicles are included in the scope of calculation.
Waste oil	The CO ₂ emission coefficient for fuel oil recycled from waste oil (and used interchangeably with Heavy Oil A) is 2.63 t-CO ₂ /kl as stipulated in Japan's Act on Promotion of Global Warming Countermeasures.
LPG	In cases where the volume of LPG consumption is recorded by the supplier in cubic meters, a coefficient for converting the volume into metric tons must be obtained from said supplier. However, if such a coefficient is not available, convert figures into metric tons using the coefficient in the Guidelines for Preparing Periodic Reports stipulated by the Energy Conservation Law.
Utility gas	To accurately assess the consumption of gaseous fuel, convert figures measured using utility gas meters into the volume of gas at a standard temperature. Based on data announced by Japan Meteorological Agency, this conversion is performed using annual average temperatures (rounded off to the nearest whole number) at each location, thereby adjusting the volume of gas consumption. Per-unit calorific value is based on figures listed in the Guidelines for Preparing Periodic Reports stipulated by the Energy Conservation Law.
Electricity	The CO ₂ emission coefficient for electricity is based on each utility's actual emission coefficient announced by the Ministry of the Environment. In cases where figures for the fiscal year under review are not available, use the most recent available fiscal year figures.
Industrial process	Subject to calculation
Biomass	Although listed as an emission source, biomass is excluded from calculation because it is deemed to be "carbon neutral."
Minor emission sources	Minor emission sources defined by JVETS guidelines can be excluded from calculation. These sources include: 1) Sources of emissions that account for less than 0.1% of the total emissions from the plant or office facility. 2) Sources of emissions smaller than the following figures: A plant or office facility whose emissions amount to 1,000 t-CO ₂ or more: 10 t-CO ₂ A plant or office facility whose emissions amount to less than 1,000 t-CO ₂ : 1 t-CO ₂ Minor emission sources may include LPG gas cylinders for hot-water supply systems, CO ₂ and acetylene gas cylinders, emergency power generation systems, fire extinguishing pumps, CO ₂ fire extinguishing systems and equipment. They can be listed on calculation reports when meeting any of the above-mentioned criteria.

4. Consolidate reports of each base into the YKK Group Calculation Report.
5. Personnel in charge of calculation
 - Whenever persons in charge of either the preparation or the authorization of reports are changed, new persons must be appointed and trained appropriately.
 - Persons in charge of the preparation of Periodic Reports stipulated by the Energy Conservation Law appointed at Designated Energy Management Factories shall concurrently serve as persons either in charge of the preparation or the authorization of the above report.