

# Standards for Calculating Environmental Data (CO<sub>2</sub> emissions)

## Boundary and Standards for Calculation

Stage		Methods of calculation
1. Procurement	1) Boundary	Office equipment* <sup>1</sup> and consumable supplies, optical products, * <sup>2</sup> equipment for healthcare system* <sup>3</sup>
	2) Standards	CO <sub>2</sub> emissions for office equipment and consumable supplies are calculated by multiplying the sales amount or production amount by the emissions coefficient of each product as estimated by the official value of the Eco Leaf Environment Label provided by the Japan Environmental Management Association for Industry; and for other products, multiplying the amount of resources used by the emissions coefficient of each product.
2. Production /R&D	1) Boundary	All production and R&D sites around the world
	2) Standards	CO <sub>2</sub> emissions are calculated by multiplying the amount of energy used at each site by the following coefficients. <b>Fuel:</b> Coefficients stipulated in Japan's Act on Promotion of Global Warming Countermeasures <b>Electricity in Japan: Fiscal 2005</b> average value of all electrical power sources, as specified by the Federation of Electric Power Companies of Japan <b>Electricity outside Japan: Fiscal 2005</b> emissions coefficients applicable to each country, as specified by the GHG Protocol
3. Distribution	1) Boundary	Japanese domestic distribution, Chinese production distribution (from factory to port), and international distribution of office equipment, optical products, equipment for healthcare system
	2) Standards	CO <sub>2</sub> emissions are calculated by multiplying transport distance by cargo weight, and then multiplying that value by the CO <sub>2</sub> emissions coefficient of each means of transportation.* <sup>4</sup> <b>Chinese production distribution and international distribution:</b> Coefficients specified by the GHG Protocol <b>Japanese domestic distribution:</b> Coefficients stipulated in Japan's CO <sub>2</sub> Emissions Calculation Method for Logistics Operations—Joint Guidelines Ver.3.0
4. Sales and service	1) Boundary	Major sales companies around the world
	2) Standards	<b>Offices:</b> CO <sub>2</sub> emissions are calculated by multiplying the amount of energy used at main sites (including estimated values for some sites) by the following coefficients. <b>Fuel:</b> Coefficients stipulated in Japan's Act on Promotion of Global Warming Countermeasures <b>Electricity in Japan:</b> 2005 average value of all electrical power sources, as specified by The Federation of Electric Power Companies of Japan <b>Electricity outside Japan:</b> 2005 emissions coefficients applicable to each country, as specified by the GHG Protocol <b>Vehicles:</b> CO <sub>2</sub> emissions are calculated by multiplying the amount of vehicle fuel used by the following coefficients. <b>Fuel:</b> Coefficients stipulated in Japan's Act on Promotion of Global Warming Countermeasures
5. Usage	1) Boundary	Office equipment and equipment for healthcare system * Optical products are excluded since they are used as parts of other companies' products
	2) Standards	CO <sub>2</sub> emissions are calculated by multiplying the number of units operating in the market (inferred from sales units each year and the life of the product) by the estimated annual amount of electrical consumption* for each model and the CO <sub>2</sub> coefficient equal to the fiscal 2005 world average value specified by the GHG Protocol * The annual amount of electrical consumption for office equipment is estimated based on the Typical Electricity Consumption (TEC) value set by the International Energy Star Program, and for equipment for healthcare system it is estimated based on each product's specifications.

### Notes

\*<sup>1</sup> Office equipment include multi-functional peripheral (MFP), printer and other products manufactured and marketed by Konica Minolta Business Technologies, Inc.

\*<sup>2</sup> Optical products include pickup lens, TAC film and other products manufactured and marketed by Konica Minolta Opto, Inc.

\*<sup>3</sup> Equipment for healthcare system include medical and diagnostic imaging systems and other products manufactured and marketed by Konica Minolta Medical & Graphic, Inc.

\*<sup>4</sup> In order to standardize the method used for calculation of CO<sub>2</sub> emissions from distribution by each business company, the distance data used has been changed.

\* Figures in graphs may not add up to totals due to rounding.

## Standards for Calculating Environmental Data (Emissions other than CO<sub>2</sub>)

### Boundary and Standards for Calculation

Items		Methods of calculation
1. Petroleum-based resource usage in products	1) Boundary	Raw materials and parts used in office equipment and consumable supplies, optical products and equipment for healthcare system*1
	2) Standards	Calculated by multiplying the raw material or part weight by content percentage of petroleum-based resources set for each material, based on the product specification*2
2. Packaging materials usage	1) Boundary	Raw materials and parts used in packaging for office equipment and consumable supplies, optical products and equipment for healthcare system
	2) Standards	Calculated by multiplying the weight of packaging material per single product (based on product specifications, etc.) by the number of units of the product sold, based on sales results
3. Waste discharged externally from manufacturing	1) Boundary	All production and R&D sites around the world
	2) Standards	The total actual weight of waste discharged externally from production*3
4. Atmospheric emissions of VOCs	1) Boundary	Production sites around the world with ten or more environmental-impact index points, when points are added for every compound that is rated of one point or more.
	2) Standards	The sum of the environmental impact index*4 for atmospheric emissions of VOCs*5
5. Water consumption	1) Boundary	All production and R&D sites around the world
	2) Standards	The total amount of water intake (city water, ground water, industrial water)

#### Notes

\*1 The boundaries for some figures are slightly different between those shown in the Overall Picture of Environmental Impact and those used in the calculation of the petroleum-based resource usage.

\*2 Some of the data for consumable supplies and equipment options was changed to reflect actual values rather than estimates

\*3 Of the waste (refuse, etc.) generated at production and research and development sites for which Konica Minolta has responsibility as generator of waste, the amount discharged outside the Konica Minolta site. However, some wastes unrelated to production are excluded.

\*4 **Environmental impact index:** An index unique to Konica Minolta.

Environmental impact index (point) = Atmospheric emissions of VOCs [t] × Hazard coefficient × Location coefficient

**Hazard coefficient:** Set at 1-fold, 10-fold, or 100-fold depending on the severity of the impact on human health and the environment (set independently by Konica Minolta based on the coefficient used in the safety evaluations conducted by Kanagawa Prefecture in Japan)

**Location coefficient:** Outside the industrial estate 5, inside the industrial estate 1

\*5 The overall picture of environmental impact does not take into account the hazard coefficient and location coefficient, and the atmospheric emissions are shown as is.

\* The petroleum-based resource usage, for which reduction targets are set in the Medium-Term Environmental Plan, is calculated by taking the total amount of (1) petroleum-based resource usage in products; (2) petroleum-based resource waste in waste discharged externally from manufacturing; and (3) fuel consumption of sales and service vehicles.

\* Figures in graphs may not add up to totals due to rounding.