

Greenhouse gas emissions

Greenhouse gases are constituents of the earth's atmosphere that are capable of storing thermal energy. They are considered to be responsible for climate warming. The substances in question were subsequently defined in the Kyoto protocol, emission levels were limited and individual countries were assigned corresponding quotas.

Roche supports the targets for reducing emissions specified in the protocol and has set itself the Group target of achieving a 10% reduction over the 5 years to 2008. The successful achieving this goal is described in the chapter "SHE goals". The greenhouse gases emitted by Roche consist for the most part of CO₂ from energy generation; less than 1% consist of halogenated hydrocarbons from refrigeration and cooling plants.

Greenhouse gas emissions and sales are used as indicator variables for calculating Roche's specific contribution to the greenhouse effect. This contribution is stated in CO₂ equivalents per CHF 1 million of sales. The value for the reporting year is 23.28, which represents an increase of 2.0% relative to the preceding year.

Over the years the trend shows that CO₂ emissions follow a largely parallel course to energy consumption.

Specific contribution to the anthropogenic greenhouse effect in the Roche Group

	2008	2007	2006	2005	2004
CO ₂ emissions from combustion (t)	1 053 502	1 043 868	957 368	1 059 304	1 014 000
CO ₂ equivalents from emissions of halogenated hydrocarbons ¹ (t)	8 612	8 539	22 641	19 141	13 567
Total CO ₂ equivalents (t)	1 062 114	1 052 407	980 009	1 078 445	1 027 567
Sales (CHF million)	45 617	46 133	42 041	35 511	29 522
CO ₂ equivalents (t)/ CHF 1 million sales	23.28	22.81	23.31	30.37	34.80

¹ Average greenhouse potential of halogenated hydrocarbons, calculated using IPCC conversion factors.

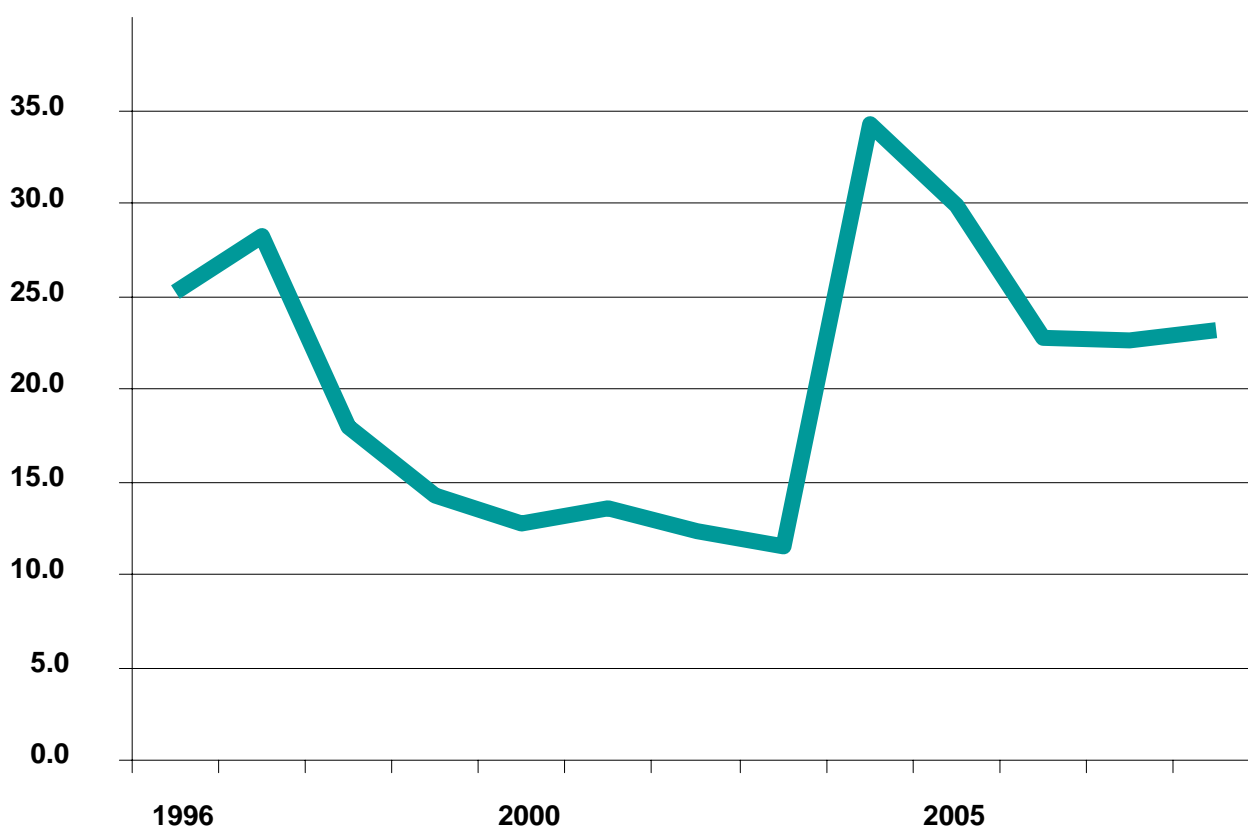
Besides affecting the climate halogenated hydrocarbons (such as CFCs and HCFCs) damage the ozone layer. Therefore a Group directive on the progressive phasing out of CFCs and HCFCs commits us to eliminate them from our cooling systems and fire extinguishing systems by 2010. However, several projects to replace HCFCs in refrigeration units have been held up by the lack of accepted alternatives in some countries and reorganisation plans have put some phasing-out projects on hold at important sites. The target date to eliminate these compounds has therefore been extended.

HFCs (hydrofluorocarbons) and PFCs (perfluorinated carbons), which are often used as replacements to HCFCs and CFCs, do not affect the ozone layer. However, they have considerable global warming potential and/or are persistent. We do not consider them to be a suitable long-term alternative and we aim to phase out these compounds by 2015.

Appropriate plans are in place and investment projects are being implemented to meet this goal.

The inventory of these substances decreased by 2.4% relative to the preceding year and emissions came down by 28%. Future reductions in inventory are expected to be accompanied by reduced levels of emissions.

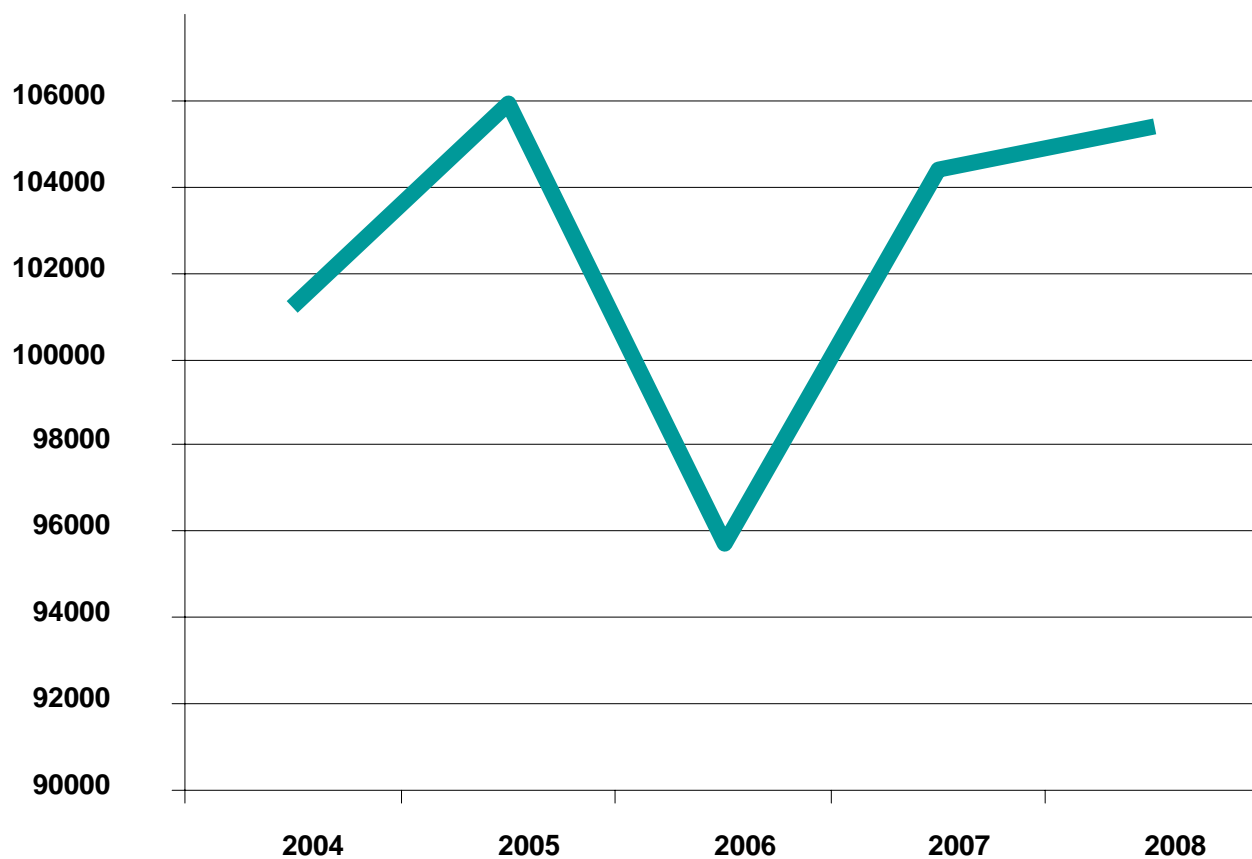
CO₂ equivalents (t) emitted per CHF 1 million sales



Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Emissions (t) / CHF 1 mio sales	26.84	32.46	20.12	15.99	13.37	14.41	113.80	12.48	34.81	30.37
Year	2006	2007	2008							
Emissions (t) / CHF 1 mio sales	23.31	22.81	23.28							

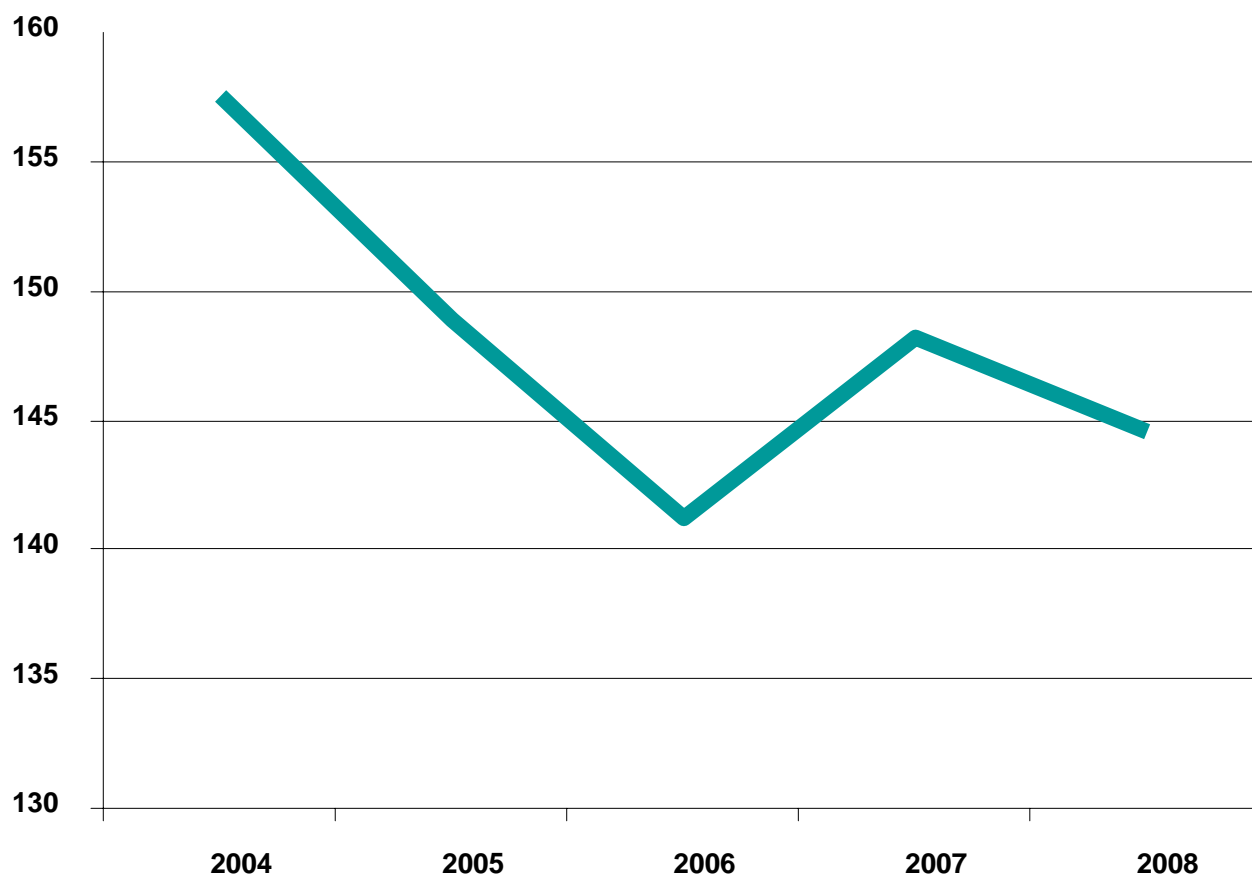
The trend since 2003 is a reflection of the changes in the system boundaries for collecting key figures. The contributions made by our affiliates Genentech and Chugai have been included since 2004. Energy consumption and greenhouse gas emissions take account of the corporate vehicle fleet and business travel, and imported energy such as electricity has likewise been assigned a CO₂ emission factor.

CO₂ emissions (t)



Year	2004	2005	2006	2007	2008
t CO ₂	1 011 988	1 059 304	957 368	1 043 868	1 053 502

Inventory of halogenated hydrocarbons (t)



Year	2004	2005	2006	2007	2008
t halogenated hydrocarbons	157.5	148.9	141.2	148.2	144.6