

Atmospheric emissions

VOC emissions

VOCs (volatile organic compounds) are defined as compounds with a boiling point of < 150°C. Emissions may occur during the use of such substances in production or during distillation or transfer. VOCs play a significant part in the formation of summer smog (ground-level ozone).

Emissions reduction measures involve use in closed systems or suitable exhaust air treatment (filters or exhaust air incineration). Roche's ongoing efforts to reduce environmental impact as part of its sustainable development program are reflected in the 97.5% reduction in VOC emissions in metric tons per CHF 1 million of sales since 1992. In 2008, the Roche Group emitted 213 metric tons of VOCs, some 8.5% of which were halogenated.

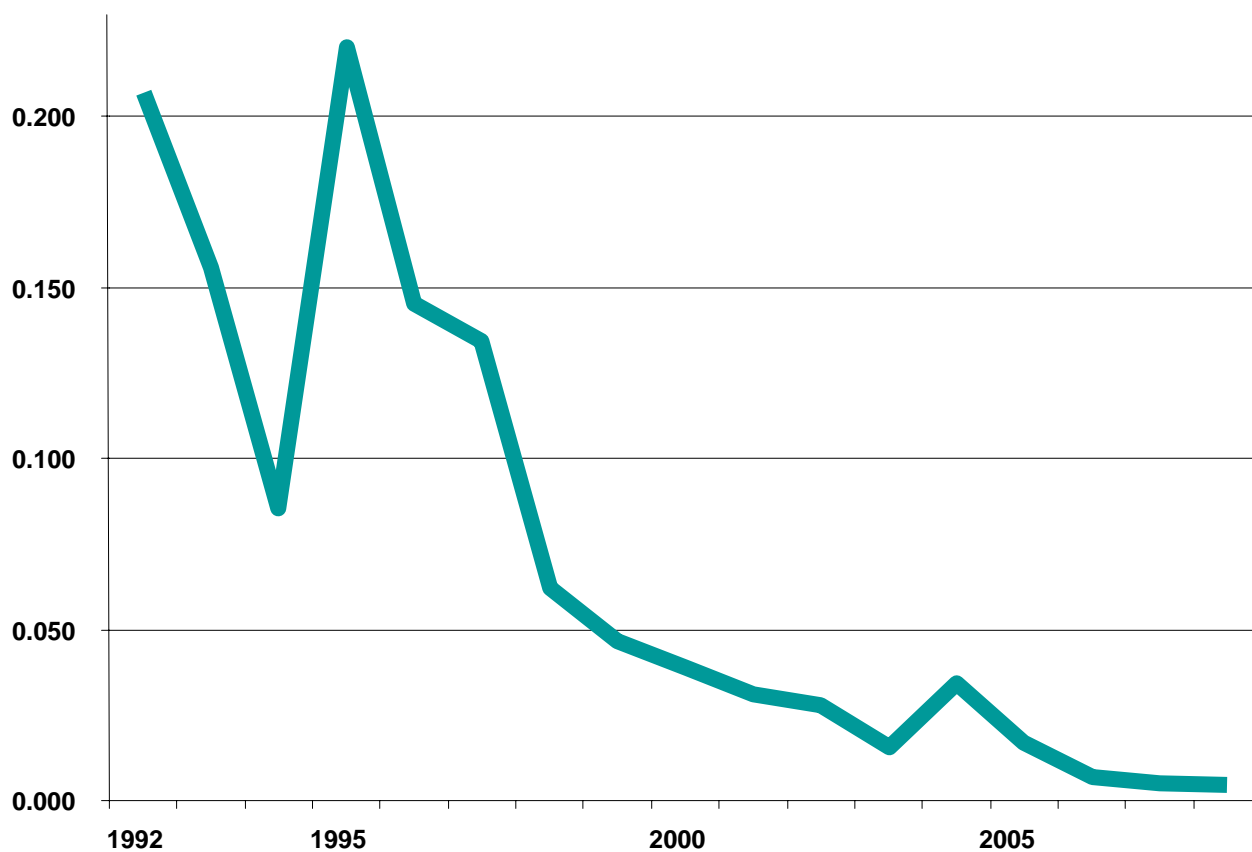
Inorganic emissions (NO_x, SO₂)

Emissions of nitrogen oxides (NO_x) and sulfur dioxide (SO₂) into the atmosphere are responsible for the formation of acid rain. Roche does not emit any of these substances into the atmosphere from its production processes. The 193 metric tons of NO_x and 10 metric tons of SO₂ emitted in 2008 originate from the combustion of fossil energy carriers and waste for energy generation. Overall inorganic emissions of Roche operations are on very low levels with results of measurements scattering. The 14.2% increase of NO_x emissions relative to the preceding year thus cannot be considered as a trend.

Particulates emissions

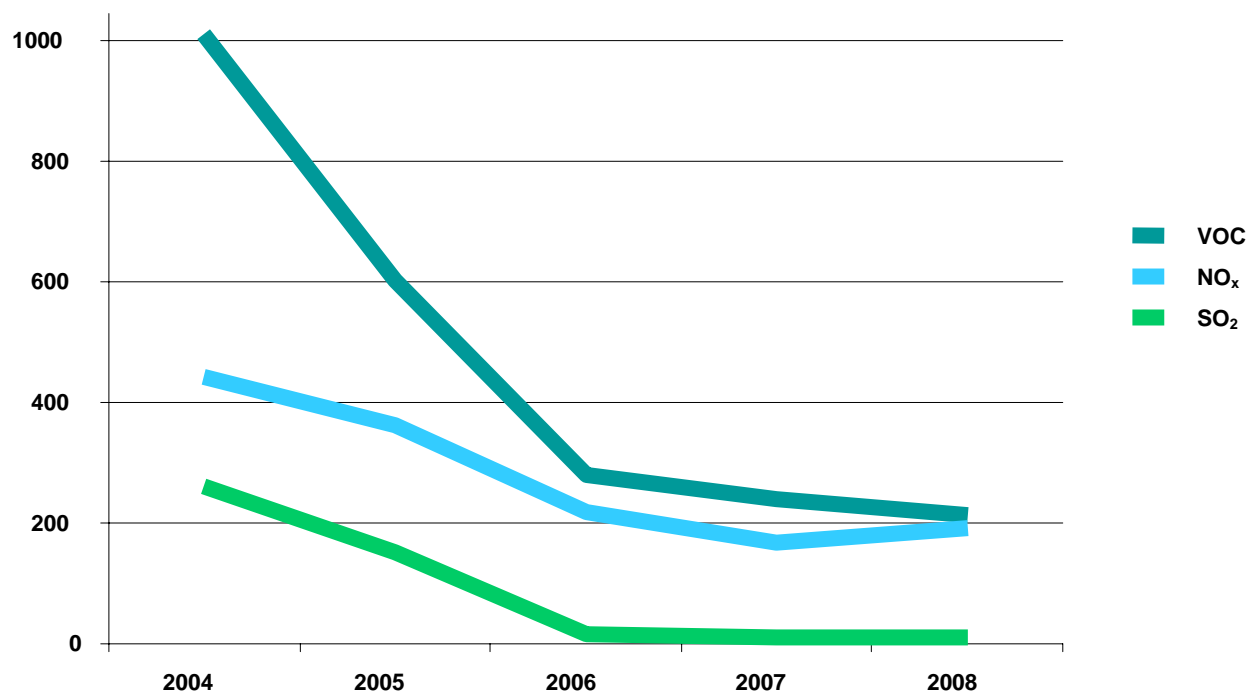
Particulates emitted into the atmosphere consist of soot from combustion plants and dusts from the production of solid mixtures. A total of 27 metric tons were released in 2008.

Atmospheric VOC emissionen (t) per CHF 1 mio sales



Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
t / CHF 1 mio	0.207	0.156	0.085	0.220	0.145	0.134	0.062	0.047	0.039	0.031	0.028	0.016	0.034	0.017
Year	2006	2007	2008											
t / CHF 1 mio	0.007	0.005	0.005											

Atmospheric emissions



Year	2004	2005	2006	2007	2008
VOC (t)	1010	604	281	240	213
NO _x (t)	442	363	219	169	193
SO ₂ (t)	261	151	15	12	10