

Roche Position¹ on Preventing and Reducing Pollution: We protect Air, Water and Soil

Roche's Position

We recognize that our business activities inevitably lead to environmental impacts, in particular to harmful air emissions, effluents into water and discharges to soil. We acknowledge the limited capacity of the earth to absorb and degrade such pollutants.

In striving for continuous reduction of the environmental impact of our business operations we have established clear internal guidelines and directives and we work to implement corresponding measures in all our business activities. We verify the implementation by conducting internal environmental audits and keep our management informed on environmental programs and the performance attained.

We measure our total environmental impact according to the Ecological Scarcity Method developed by the Swiss Federal Office for the Environment (FOEN: BAFU). Using this method, all environmental impacts (e.g. emissions, contamination, resource consumption, waste, etc.) are translated into Eco-Points (EP), which are summed to give a single total aggregated Eco-Point score that holistically measures environmental impact.

Example:

Type of impact	Quantity	Impact factor	Total impact points
Consumption of non-sustainable energy	10 x 10 ⁹ MJ	3.40 per MJ	34 x 10 ⁹
CO ₂ emissions to air	1 x 10 ⁹ kg	460 per kg	460 x 10 ⁹
Phosphorous emissions to water	50'000 kg	890'000 per kg	44.5 x 10 ⁹
etc.		
Total Eco-Point Score			790 x 10⁹

We continue setting long-term goals for reducing our environmental impact (see our webpage for more information).

¹ Pertains to SDGs 3, 6 and 12

The global situation

In spite of recent great improvements in certain regions, globally speaking, pollution of air, water and soil has increased continuously throughout the industrial era. The ever-increasing combustion of fossil fuels pollutes the air with soot, respirable dust, nitrogen oxides (NO_x), sulfur dioxide (SO₂) and is the main source of carbon dioxide (CO₂) emissions. Growing industrial production (including chemicals) generates more and more problematic waste that is discharged into water bodies, the ground and the air. Moreover, the disposal of ever more goods contributes to an increase in the number and size of landfills which in turn represent secondary sources for the pollution of soil, water and air (see our separate position papers on Greenhouse Gases and Climate Change; Waste; Water; Pharmaceuticals in the Environment; and Landfills and Contaminated Soil).

The negative effects of such pollution became obvious decades ago. Polluted air is causing health disorders and water is rendered unfit for human consumption. Landfills can pose a risk of poisoning and combined effects may endanger biodiversity. The capacity of our planet to absorb this pressure is overstretched.

In reaction to this situation, environmental policies and regulations have been introduced all over the world. Concrete countermeasures have been taken to avoid or reduce emissions and discharges and to contain pollutants. In many cases this has led to marked improvements: air and water quality are now better in numerous (mainly developed) countries, contaminated soil has been cleaned up and the incineration of wastes has reduced the volumes that are landfilled.

However, pollution is rampant in many places, especially where the budgets are tight.

The situation at Roche

Roche's operations contribute to emissions into air and discharges into water and soil. In order to alleviate the negative impacts of such pollution we began, already decades ago, to control and reduce emissions and discharges by means of the following measures:

Air emissions: Process air contaminated with problematic substances, e.g. volatile organic compounds (VOC), other gaseous chemicals and dust, is being collected and separated or directly incinerated onsite in state of the art incinerators. Emissions from burning fossil fuels, like CO₂, NO_x and SO₂, are being reduced through the reduction of energy consumption (see our separate position paper on Energy; CO₂ emissions at Roche are almost exclusively from energy use). We also switch to less polluting fuels, e.g. from heavy oil to sulfur-free light oil to natural gas, and use sustainable energies with little environmental impact, e.g. solar and geothermal. Roche's NO_x and SO₂ emissions are now at a very low level.

We have the goal to replace within a reasonable period of time all substances that deplete the ozone layer or that contribute to the global warming or may represent risks due to their persistence in the atmosphere, with clear interim goals (see our webpage).

Discharges into the water: The toxicity and quantities of pollutants from our production operations are reduced by the optimization of processes (“green chemistry”). Waste water from all relevant production units is cleaned in wastewater treatment plants. Special waste water treatment technologies are integrated in the processes where necessary, e.g. oxidation, filtration or incineration. Heavy metal discharges are at a very low level and are mainly caused by leaching from metal piping (e.g., zinc-coated water pipes).

Discharges into the soil: We generate less and recycle remaining wastes wherever feasible. This includes scrap diagnostic instruments. We have a policy not to landfill any chemical and problematic medical waste. All such waste is incinerated and only the remaining inert materials are landfilled.

We avoid spillages through proper construction, e.g. leak-tight installations, collection bunds and drains, fire water retention, and preventive maintenance of our plants.

We support take-back programs for unused and expired medicines in order to minimize pollution by improper disposal of such products.

Control of genetically modified organisms: In large scale biotech production we use microorganisms or cell lines exclusively from risk group 1, which present no or a very low risk to man and the environment. In research and development, and in certain processes used for the commercial manufacture of diagnostic tests, microorganisms may be used that can cause disease. In handling these agents, Roche strictly complies with the appropriate biosafety standards recognized across the world. Organisms from higher risk groups, which are sometimes used in research, are inactivated before release to the environment (e.g. by autoclaving and incineration). See our separate position paper on SHE aspects of Biotechnology.

Risk: To grant marketing authorization for a new pharmaceutical product, authorities in a number of countries require an environmental risk assessment (ERA). This investigation looks for environmental impacts from the intended use of the medication taking into account the market volume as well as intrinsic physical and eco-toxicological properties. Authorization is only granted when the environmental risk is deemed acceptable. The transition from chemical manufacturing to biotechnology is beneficial in this respect: the bio-molecules are readily biodegradable and therefore do not harm the environment.

We also investigate our older products. We have found no undue environmental risk due to these products at current use levels. Beside our final products we further assess environmental hazards and risks for production intermediates and for ancillary compounds necessary for production.

Based on our own risk assessment we, in many cases, take measures beyond legal requirements and pro-actively minimize pollution.

Supply Chain: We outsource some of our production and we purchase chemicals and other products from third parties, some of which are in countries with lower environmental standards. We request these suppliers to follow our high SHE standards and we verify their performance through questionnaires and where necessary through audits at their plants. If suppliers do not deliver to our expectations or are not willing to improve we will do no business with them.

The use of our products and their final disposal may also have a negative impact on the environment. We strive to reduce these effects by developing less polluting products. Examples are environmental friendly refrigerants in our diagnostic instruments or easily recyclable application systems for medicines. We also support take-back programs everywhere in order to avoid improper disposal of unused pharmaceuticals and diagnostic instruments. For more details on this topic, see our position papers on Product Stewardship; and Pharmaceuticals in the Environment.

Goals: We have set several goals to reduce our environmental impact, such as reducing our energy intensity and switching towards sustainable energies (yielding significant reductions of air emissions (such as CO₂ or NO_x emissions) and, as part of our total eco-balance goal, reducing emissions to air and water, and disposed waste quantities.

We regularly provide detailed reports on our achievements in reducing our emissions and discharges (see our webpage for details).

Further information

Position papers on several environmental topics:

http://www.roche.com/sustainability/how_we_work/positions_policies_downloads.htm

Environmental goals and environmental performance:

http://www.roche.com/sustainability/what_we_do/for_communities_and_environment/environment/our_she_goals_and_performance.htm

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