Acidification

Emissions from burning fossil fuels react with other gases in the atmosphere to form acids.

Unilever's impact

Sulphur and nitrogen oxides – often referred to as SOx and NOx – from vehicle exhaust fumes, industrial boilers and power stations fall in the form of acid rain and contribute to increased acidity in rivers and lakes. Other industrial acidic effluents also contribute. Acid emissions are a shared problem because of the universal use of fossil fuels.

We use fossil fuels in our factories to provide heat and some electricity. The fuels vary in the amount of acid gas they produce. Natural gas contains only a small amount of sulphur, whereas fuel oils can contain up to 3% sulphur. Some fuels, such as coal, vary in their makeup from one region to another.

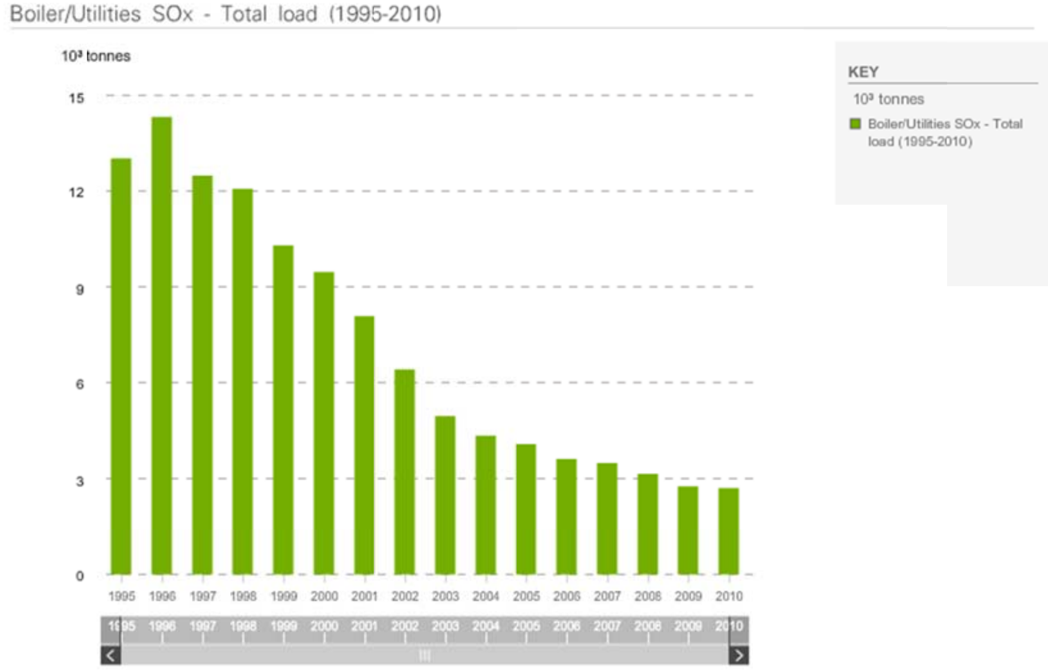
We also release some sulphur gases from the sulphonation process that converts hydrocarbons to surfactants. Indirectly, we are responsible for emissions from the operations of our contractors and suppliers, mainly in the generation of electricity, transport activities and farmers' use of fertilisers.

Action being taken

Acidification potential is a key theme in the life-cycle assessment studies used to evaluate our products. As well as environmental factors, the choice of fuel will depend on availability, cost and ease of use. Our global supply chain network has a programme to reduce emissions from sulphonation by sharing best practice.

Most of our manufacturing sites have a boiler for generating steam. Around half of the boilers use fuel oil or coal and therefore emit SOx and NOx. In some cases diesel generators are also used for electricity generation. The SOx and NOx data is calculated from the total mass of fuel consumed, and its sulphur content and typical NOx emission factors. The data is expressed in terms of a mass of sulphur dioxide (SO_2).

To interact with this chart, visit the interactive charts section of our sustainability website.



To interact with this chart, visit the interactive charts section of our sustainability website.

To interact with this chart, visit the interactive charts section of our sustainability website.

To interact with this chart, visit the interactive charts section of our sustainability website.

In 2010, we reduced SOx emissions from our boiler and utility operations by 7.7% expressed as load per tonne of production and we met our 2010 milestone of a 0.7% reduction. A 3.4% reduction was also achieved in the absolute load for Boiler/Utilities SOx.

The main reasons for the decrease in SOx emissions were:

- Lower sulphur content fuels eg the replacement of fuel oil with gas in Turkey and the use of lower sulphur content fuel oil, diesel and coal (India, Indonesia and the Philippines).
- Energy saving measures taken by a number of sites to reduce fuel oil consumption eg through improving boiler efficiency (India and Greece).
- Maximising the use of low sulphur content biomass, particularly in Sri Lanka.

In some cases process changes eg in Kenya, India and Greece have led to greater energy demand and increased Boiler SOx emissions. Also SOx emissions were higher in Pakistan, due to problems with the stability of the grid electricity and gas supply, leading to increased consumption of higher sulphur content fuel in on-site diesel generators. In other cases SOx levels have increased due to improved measurement of the sulphur content of the fuels used by some sites in India.