

## **Sulphur dioxide**

Sulphur dioxide, a chemical compound with the formula  $\text{SO}_2$ , is a heavy, colourless, non-flammable gas [Posts](#) with a pungent, irritating odour.

Even though  $\text{SO}_2$  is very toxic to humans, it is extremely useful. It is used extensively in the preparation of sulphur compounds and solvents, as a disinfectant, a bleach, a refrigerant in the ice industry, for fumigation and as a preservative for beer, wine, dried fruits and meats.

How is it formed through human activity?

Industry: Coal- and oil-fired power plants, steel mills, refineries, pulp and paper mills, and nonferrous smelters are the largest releasers of  $\text{SO}_2$ .

Transportation, Keeping Warm and Cooking: No burning process is ideal. All fossil fuels have contaminants. Since coal, oil and diesel often contain sulphur and nitrogen compounds, their combustion generates sulphur dioxide and nitrogen oxides.

Mining: Coal mining itself produces  $\text{SO}_2$ . Coal contains pyrite, a sulphur compound; as water washes through mines, this compound forms a dilute acid, which is then washed into nearby rivers and streams.

Why Sulphur dioxide is toxic to life

If we are exposed to 10ppm (parts per million)  $\text{SO}_2$  for about an hour, it

- irritates the nose and throat
- sometimes causes a choking sensation
- nasal discharge, sneezing, cough, increased mucus secretion
- In addition, sulphur compounds in the air contribute to decreased visibility.
- $\text{SO}_2$  is also a primary contributor to acid rain, which causes acidification of lakes and streams and can damage trees, crops, historic buildings and statues.
- High concentrations of sulphur dioxide ( $\text{SO}_2$ ) affect breathing and may aggravate existing respiratory and cardiovascular disease. Sensitive populations include asthmatics, individuals with bronchitis or emphysema, children and the elderly.