

Sulphur Dioxide (SO₂)

Sulphur dioxide is a colourless, non-flammable gas with a pungent odour. Natural sources include volcanoes, biodegradation of organic matter, and solar action on seawater. The primary anthropogenic sources of SO₂ include fossil fuel combustion, petroleum refining, and smelting sulphide ores.

Exposure to SO₂ results in numerous effects to the pulmonary system. Healthy subjects exhibit increased airway resistance and bronchoconstriction, decreased maximum expiratory flow and decreased pulmonary function. Asthmatic subjects exhibit similar symptoms but also report increases in asthma symptoms, wheezing, chest tightness, and difficulty breathing.

Sulphur dioxide affects vegetation as a result of acute and chronic exposures. Acute exposure to high concentrations of sulfur dioxide can produce injury in the form of foliar necrosis. Long term exposures to low concentration of SO₂ have been shown to affect metabolic activity.

The current Alberta Ambient Air Quality Objectives (AAAQO) for Sulphur dioxide are:

- 1-hour average AAAQO = 172 ppb;
- 24-hour average AAAQO = 48 ppb; and
- annual average AAAQO = 8 ppb.