

Sulfur Dioxide: Effects on Environmental and Wild Life

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Opinion

Sulfur dioxide (SO₂) is a colourless gas with an acrimonious odour. It is made from the combustion of fossil fuels and the smelting of sulfur-bearing mineral ores. Volcanoes that erupt can be a substantial source of sulphur dioxide emissions. Sulphuric acid is one of the most widely manufactured and used compounds in the world, with a wide range of industrial and home applications.

Health effects

Sulphuric acid in concentrated form is very corrosive to any tissues with which it comes into contact. Single, strong doses of sulphuric acid inhaled, ingested, or absorbed via the skin can be lethal. Inhaling powerful inorganic acid mists, which may contain sulphuric acid, causes laryngeal cancer; research shows that exposure is also linked to lung cancer in people. Inhalation can induce respiratory tract and eye discomfort, lacrimation, rhinorrhoea, cough and chest tightness. After a single short-term exposure, severe lung damage such as chemical pneumonia, congestion, fibrosis, bronchiectasis and inflammation can ensue.

Ingestion can result in oedema, airway blockage and trouble clearing bronchial secretions, as well as acute burns to the mouth, throat, larynx, oesophagus and stomach. Salivation, dysphagia, vomiting, bleeding, haematemesis, diarrhoea and abdominal discomfort are all possible symptoms. Circulatory collapse, metabolic acidosis, hypoxia, respiratory failure, acute renal failure, haemolysis and disseminated intravascular coagulation, as well as death, are all possible outcomes. Pain, blepharospasm, lacrimation, conjunctivitis, photophobia, palpebral oedema, glaucoma, cataracts and corneal damage are all possible side effects of ocular exposure. Chemical burns can occur as a result of exposure to concentrated sulphuric acid.

Sulphuric acid exposure to the skin can produce irritation, erythema and burns; severe chemical burns from sulphuric acid contact can be lethal.

Sulphuric acid poisoning is mostly caused by effects at the point of initial contact, while systemic symptoms such as circulatory collapse, metabolic acidosis, hypoxia, respiratory failure, acute renal failure, haemolysis and disseminated intravascular coagulation have been reported. Sulphuric acid isn't thought to constitute a developmental hazard. In humans, skin contact with sulphuric acid is not considered an allergy.

Environmental effects

Acid rain is a type of precipitation that contains dangerous levels of nitric and sulfuric acids. When fossil fuels are burnt, nitrogen oxides and sulphur oxides are released into the atmosphere, forming these acids. These acids either fall to Earth as wet precipitation (rain, snow, or fog) or as dry precipitation (snow, ice, or fog) (gas and particulates). The wind carries some of them for hundreds of kilometres. Acid rain harms plants and promotes the acidification of soils and water bodies, rendering the water unfit for some fish and other species. It also hastens the deterioration of national treasures such as buildings, monuments and sculptures. Acid rain has wreaked havoc on Massachusetts lakes, ponds, rivers and soils, wreaking havoc on animals and woodlands in the process.

Acid rain has been discovered to be extremely damaging to trees. It weakens them by removing the protective layer on the leaves, as well as stunting their development. In 2005, evidence of acid rain slowing tree development was published in the online version of the journal *Environmental Science and Technology*.

Acid rain may alter the chemistry of soil and water bodies, rendering them inhospitable for local animals and plants. Healthy lakes, for example, have a pH of 6.5 or above. Fish die off as the amount of acidity rises as a result of acid rain. The majority of fish species cannot thrive in water with a pH of less than 5. According to the National Atmospheric Deposition Program, when the pH reaches 4, the lake is deemed dead. It may also damage limestone and marble structures and monuments, such as gravestones.

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