Sulfur Dioxide Encyclopedia Article

Sulfur Dioxide

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Sulfur Dioxide

Sulfur dioxide (SO_2) is an air pollutant known primarily for its role in acid rain. SO_2 is emitted naturally from volcanoes. **Anthropogenic** emissions arise largely from the production of electricity, particularly coal-fired power plants (65%). The sulfur in the coal reacts with oxygen during combustion, converting it to SO_2. Scrubbers, using a slurry of limestone and water, are used to extract the SO_2 before it exits the stack.

Once in the atmosphere, SO_2 is converted to other compounds such as sulfuric acid (H_2SO_4), the primary contributor to acid rain. SO_2 also reacts to form sulfate aerosols. These tiny airborne particles are the major cause of haze in U.S. national parks.

Both SO_2 gas and sulfate aerosols cause breathing problems, particularly for people with existing respiratory illnesses such as asthma. For health reasons, to reduce acid rain, and to improve visibility, SO_2 emissions are regulated by a market-based allowance trading system established by the U.S. Environmental Protection Agency (EPA).

Bibliography

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Internet Resource

Agency for Toxic Substances and Disease Registry (ATSDR). "ToxFAQ for Sulfur Dioxide." Available from http://www.atsdr.cdc.gov/tfacts116.html .

U.S. Environmental Protection Agency Web site. Available from http://epa.gov.