



## Outdoor Air Quality Sulphur Dioxide (SO<sub>2</sub>)

Air quality is a measure of the levels of pollutants in the air. Air pollution depends not only on how much pollution is released, but also on how well pollutants are mixed in the air. Factors that affect the mixing and movement include weather conditions, such as wind and precipitation, as well as natural and physical features of an area such as mountains and water bodies. In valleys air pollutants can build up close to the ground where they can be breathed in.

Health concerns increase when you are near the source of air pollutants or when you are exposed to air pollutants for lengthy periods of time. Reduce your exposure to air pollution by moving to places where pollutant levels are lower. This may be either indoors or outdoors.

Air quality can vary greatly from one area or community to the next and from one hour to the next. The concentration of common air pollutants, including sulphur dioxide (SO<sub>2</sub>), are monitored and reported continually in many communities throughout British Columbia at [www.bcairquality.ca](http://www.bcairquality.ca).

### What is sulphur dioxide?

Sulphur dioxide is a highly reactive, colourless gas with an odour similar to the smell of a struck match. Sulphur dioxide is considered to be the main pollutant of concern among a group of pollutants called sulphur oxides. Once released, sulphur dioxide can react with other pollutants in the air to form fine particulate matter. For more

information, see HealthLink BC File [#65e Particulate Matter Air Pollution](#).

Sulphur dioxide can also dissolve in water to form sulphurous acid and be absorbed by and irritate the throat and lungs.

### What are the sources of sulphur dioxide in outside air?

In British Columbia, the largest sources of sulphur dioxide in order of contribution include:

- oil and gas industry
- pipeline operations
- marine operations
- metal smelting
- pulp and paper production

Other sources include the burning of high sulphur containing fuels by large ships and off-road equipment. Sulphur dioxide may also be released from natural sources such as volcanic eruptions and in low quantities from forest fires.

The people most often exposed to sulphur dioxide are workers in industrial facilities, where it is used or occurs as a by-product. People living near these industries and other sources are also likely exposed to sulphur dioxide.

### What are the health concerns of sulphur dioxide?

If you breathe air containing sulphur dioxide, you may absorb it into your body through your nose and lungs. Long-term exposure to major sources of sulphur

dioxide can affect a person's health. It can reduce the ability to breathe deeply or take in as much air for each breath. The particles produced by the reaction of sulphur dioxide with other compounds in the air can penetrate deeply into the lungs. These particles can aggravate or worsen existing heart disease and respiratory disease, such as emphysema and bronchitis. Children who have breathed sulphur dioxide pollution may also develop more breathing problems as they get older. At high levels, sulphur dioxide can be life-threatening for people.

Even short-term exposure to sulphur dioxide can cause health concerns especially for people with asthma, young children, and the elderly. Symptoms may include constriction or tightening of the airways in the lungs, coughing, wheezing, and shortness of breath. For these sensitive individuals, sulphur dioxide exposure can result in increased visits to emergency departments and hospital admissions for respiratory illnesses.

### **How can you reduce the risk of exposure to sulphur dioxide?**

For the public, exposure to sulphur dioxide occurs by breathing contaminated air, especially if you breathe deeply during heavy labour or exercise. You should limit your exposure during times of high concentrations of air pollution. This can be done by rescheduling exercise times, by avoiding sources of sulphur dioxide and/or by remaining indoors with windows closed.

The website [www.bcairquality.ca](http://www.bcairquality.ca) provides information on sulphur dioxide concentrations for some B.C. communities.

Those with medical conditions, such as asthma, chronic respiratory disease or heart disease, should continue to follow a management plan developed with their

doctor. If symptoms such as coughing, wheezing, or shortness of breath occur, you should seek medical attention.

### **For more information**

For more information about sulphur dioxide in your area, contact your local Ministry of Environment office or visit these websites:

B.C. Air Quality [www.bcairquality.ca](http://www.bcairquality.ca)

B.C. Ministry of Environment  
[www.env.gov.bc.ca/epd/bcairquality/index.html](http://www.env.gov.bc.ca/epd/bcairquality/index.html)

B.C. Lung Association  
[www.bc.lung.ca/airquality/airquality\\_publications.html](http://www.bc.lung.ca/airquality/airquality_publications.html)



**BC Centre for Disease Control**  
AN AGENCY OF THE PROVINCIAL HEALTH SERVICES AUTHORITY

For more HealthLink BC File topics, visit [www.HealthLinkBC.ca/healthfiles/index.stm](http://www.HealthLinkBC.ca/healthfiles/index.stm) or your local public health unit.

Click on [www.HealthLinkBC.ca](http://www.HealthLinkBC.ca) or call **8-1-1** for non-emergency health information and services in B.C.

For deaf and hearing-impaired assistance, call 7-1-1 in B.C.

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