

November 2016

New National Air Quality Standards for SO₂

Purpose

This document briefly outlines new Canadian Ambient Air Quality Standards (CAAQS) for sulphur dioxide (SO₂).

What are the CAAQS?

The CAAQS are a key element under the national Air Quality Management System (AQMS) that is currently being implemented across Canada. Under the AQMS, the CAAQS are intended to drive action on air quality, to protect human health and the environment.

What is SO₂?

Sulphur dioxide (SO₂) is a colourless gas with a pungent odour at higher concentrations. The largest sources of SO₂ in B.C. include the oil and gas sector, the pulp and paper sector, and metal smelters. Marine vessels and off-road diesel vehicles are additional sources of SO₂ in this province.

Short-term exposures to elevated SO₂ concentrations can cause breathing difficulties for asthmatics. Less clear is the influence of long-term exposure to human health. However, it is known that long-term exposures can affect vegetation and also ecosystems through acid rain.

What are the new CAAQS for SO₂?

Table 1 outlines the new CAAQS that were endorsed by the Canadian Council of Ministers

of the Environment on October 3, 2016. These include 1-hour standards to protect human health, and annual standards to protect ecosystems. CAAQS for 2020 and 2025 have been adopted to drive continuous improvement in air quality. The CAAQS for SO₂ will replace existing National Ambient Air Quality Objectives (NAAQOs) for SO₂.

Table 1. SO₂ CAAQS for 2020 and 2025.

Averaging Period	NAAQO	2020 CAAQS	2025 CAAQS
1-hour ^a	172 ppb	70 ppb ^a	65 ppb ^a
Annual ^b	10 ppb	5 ppb ^b	4 ppb ^b

^a Achievement based on annual 99th percentile of daily 1-hour maximum, averaged over three consecutive years.

^b Achievement based on annual average of 1-hour concentrations over one year.

Why were the SO₂ CAAQS developed?

The NAAQOs for SO₂ were developed in 1976 and in need of review to reflect the current weight of scientific evidence. In 2012, the CCME endorsed new CAAQS for fine particulates (PM_{2.5}) and ground-level ozone, and at the same time, signalled their intent to develop CAAQS for SO₂ and nitrogen dioxide (NO₂). Work on the NO₂ CAAQS is still progressing, with new standards expected to be announced in 2017.

How were the SO₂ CAAQS developed?

Recommendations were prepared by a multi-stakeholder working group that included

representatives from health and environmental agencies, industry and government. The working group considered the health and environmental impacts of SO₂, current and projected ambient levels, population exposure, and standards used in Canada and abroad.

Who is responsible for implementing the SO₂ CAAQS?

Under the AQMS, the province is responsible for reporting on CAAQS achievement and taking action where the CAAQS are being approached or exceeded. It is expected that the province will begin reporting on SO₂ CAAQS achievement by 2020 at the latest.

How will the SO₂ CAAQS be implemented?

The CAAQS will be used as a tool to help inform air management decisions in B.C. While the CAAQS are not intended to be used for fence-line reporting, these standards will be used to characterize air quality and potential air quality impacts in areas where people live or where other sensitive receptors are likely to be found. Where necessary, actions to reduce SO₂ emissions will be developed in cooperation with facility operators.

What will happen when and where the CAAQS are exceeded?

To address SO₂ levels in excess of the CAAQS, the Ministry of Environment will clarify the cause of the exceedances, and work with key stakeholders and affected communities to

take appropriate action to reduce SO₂ emissions over time.

What will happen to the existing provincial SO₂ objectives?

The province developed an [interim SO₂ objective](#) in 2014 to support decisions on new or expanding emission sources. These objectives will be reviewed in 2016/17.

Final note

This information is provided for the convenience of the reader and may change in the future. The Ministry of Environment should be consulted for complete information.

Ministry Contact

For more information, consult our website at: www.bcairquality.ca/ or e-mail the Ministry at: BCAirQuality@gov.bc. Additional details on the AQMS may be found on the website of the Canadian Council of Ministers of the Environment ([CCME](#)).