

Alberta Ambient Air Quality Guidelines

Introduction

Alberta's Ambient Air Quality Guidelines are established under Section 14 of the *Environmental Protection and Enhancement Act* (EPEA). EPEA provides for the development of guidelines and ambient environmental quality objectives for all or part of Alberta.

This document consolidates the Alberta Ambient Air Quality Guidelines previously published in various documents.

Alberta's Air Quality Management System

The guidelines are part of the Alberta air quality management system. This system was designed to ensure that emissions are minimized through the use of Best Available Demonstrated Technology (BADT), and that residual emissions are dispersed so that the guidelines are met.

The components of the Alberta air quality management system are diverse, and include source emission standards, plume dispersion modelling, ambient and source emissions monitoring, environmental reporting, emission inventories, approvals, inspections/abatement, enforcement and research.

Guideline Uses

The Ambient Air Quality Guidelines are used in a number of ways.

- Reporting on the state of the atmospheric environment in Alberta.
- Reporting to Albertans on the quality of air through an Air Quality index.
- Establishing approval conditions for regulated industrial facilities.
- Evaluating proposals to construct facilities that will have air emissions.
- Guiding special ambient air quality surveys.
- Assessing compliance near major industrial air emission sources.

Enforcement

Alberta Environment's enforcement actions related to air issues are based on non-compliance with EPEA, regulations, or the conditions of environmental approvals issued by the department.

Commitment to Public Consultation

Public consultation is part of the process for updating or developing new ambient air quality guidelines. This consultation is mandatory under EPEA's Section 14, Part 1. As part of the consultation, Alberta Environment would involve stakeholders such as the general public, public interest groups, the scientific community, municipalities and industry.

For more information, please call:

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Table 1 - Alberta Ambient Air Quality Guidelines

For Common Air Pollutants		
Air Quality Parameter	Guideline ($\mu\text{g}/\text{m}^3$)	Guideline (ppbv)*
Sulphur Dioxide	1-hour average	172
	24-hour average	57
	Annual arithmetic mean	11
Hydrogen Sulphide	1-hour average	10
	24-hour average	3
Nitrogen Dioxide	1-hour average	212
	24-hour average	106
	Annual arithmetic mean	32
Carbon Monoxide	1-hour average	13 ppm
	8-hour average	5 ppm
Ground Level Ozone	1-hour average	82
	24-hour average	
Suspended Particulates	24-hour average	100
	Annual geometric mean	60

For Air Toxic Substances		
Substance	Guideline 1-hour average ($\mu\text{g}/\text{m}^3$)	Guideline 1-hour average (ppbv)*
Acetaldehyde	90	50
Acetic acid	250	102
Acetone	5.9 mg/m ³	2.4 ppm
Ammonia	1.4 mg/m ³	2 ppm
Benzene	30	9
Carbon disulphide	30	10
Chlorine	15	5
Chlorine dioxide	2.8	1
Chromium	1	
Dimethyl ether	19.1 mg/m ³	10.1 ppm
Ethyl chloroformate	0.57	0.13
Ethylene**	120 (6-hour average)	104 (6-hour average)
	50 (30-day)	43 (30-day)
Ethylene oxide	15 (30 min-average)	8 (30 min-average)
Formaldehyde	65	53
Hydrogen chloride	75	50
Hydrogen fluoride	4.9	6
Lead	1.5	
Methanol	2.6 mg/m ³	2 ppm
Methylene bisphenyl diisocyanate	0.51	0.05
Monoethylamine	1.19	0.6
Phenol	100	26
Phosgene	4	1
Styrene	215	52
Sulphuric acid	10	2.5
Vinyl chloride	130	51

Table 1 - Alberta Ambient Air Quality Guidelines (continued)

Other Alberta Ambient Air Quality Guidelines	
Air Quality Parameter	Guideline
Dustfall	<ul style="list-style-type: none"> • 53 milligrams / 100 cm² / 30 days in residential and recreation areas • 158 milligrams / 100 cm² / 30 days in commercial and industrial areas
Coefficient of Haze	<ul style="list-style-type: none"> • 90% of the readings / month shall be less than 1.0 COH unit
Static Total Sulphation ^{***}	<ul style="list-style-type: none"> • 0.50 mg SO₃ equivalent / day / 100 cm² as a 1-month accumulated loading
Static Hydrogen Sulphide	<ul style="list-style-type: none"> • 0.10 mg SO₃ equivalent / day / 100 cm² as a 1-month accumulated loading
Static Fluorides	<ul style="list-style-type: none"> • 40 µg water soluble fluorides / 100 cm² / 30 days

* Standard conditions of 25°C and 101.325 kPa are used as the basis for conversion from µg/m³ to ppbv (parts per billion by volume) or from mg/m³ to ppmv (parts per million by volume).

** Applied during growing season (May 1 through September 30, inclusive), daytime (0300 to 2200 hours) as per the draft interim guideline document for ethylene.

*** Under revision.