

Schedules



Schedule 1 Regional Ambient Air Quality Guidelines

Indicator	Otago Goal Levels*	MfE Levels [†]	Averaging Times**	Preferred Techniques for Measurement***
Particulates (PM ₁₀)	35 µg/m ³	50 µg/m ³ 20 µg/m ³	24 hours annual	US 40 CFR Part 50, Appendix J
Sulphur dioxide	330 µg/m ³ 230 µg/m ³ 380 µg/m ³ 80 µg/m ³	500 µg/m ³ 350 µg/m ³ †† 570 µg/m ³ †† 125 µg/m ³ 50 µg/m ³	10 minutes 1 hour 1 hour 24 hours annual	AS 3580.4.1 - 1990
Carbon monoxide	20 mg/m ³ 6 mg/m ³	30 mg/m ³ 10 mg/m ³	1 hour 8 hours	AS3580.7.1 – 1992
Ozone		150 µg/m ³ 100 µg/m ³	1 hour 8 hours	AS 3580.6.1 - 1990
Nitrogen dioxide	130 µg/m ³ 60 µg/m ³	200 µg/m ³ 100 µg/m ³	1 hour 24 hours	AS 3580.5.1 - 1993
Lead		0.2 µg/m ³	3 months	AS 2800 - 1985
Fluoride - Special land use		1.8 µg/m ³ 1.5 µg/m ³ 0.8 µg/m ³ 0.4 µg/m ³ 0.25 µg/m ³	12 hours 24 hours 7 days 30 days 90 days	AS 3580.13.1-1993 AS 3580.13.2-1991
- General land use		3.7 µg/m ³ 2.9 µg/m ³ 1.7 µg/m ³ 0.84 µg/m ³ 0.5 µg/m ³	12 hours 24 hours 7 days 30 days 90 days	AS 3580.13.1-1993 AS 3580.13.2-1991
- Conservation area		0.1 µg/m ³	90 days	
Hydrogen sulphide		7 µg/m ³	1-hour	AS3580.4.1 – 1990, coupled with a hydrogen sulphide to sulphur dioxide converter

µg/m³ = micrograms per cubic metre

mg/m³ = milligrams per cubic metre

AS = Australian Standard

* Levels do not always equate to 66% of alert levels as a consequence of rounding.

** Averaging times are the times over which the average level of indicator should not exceed the levels given in the guidelines.

*** Other international standard methods may be used as appropriate.

† MfE (2002) updated values, except for Fluoride, where the 1994 values are still valid.

†† Refer to permissible excess in NESAQ ambient air quality standards (below).

The **Otago Goal Levels** equate to 66% of the level set by the Ministry for the Environment in its publication “*Ambient Air Quality Guidelines*” (1994 and 2002).

The 66% level has been adopted to reflect the “alert” levels being advocated in the Ministry for the Environment’s Environmental Performance Indicators Programme (*Environmental Performance Indicators: Proposals for Air, Fresh Water and Land, 1997*). Concentrations above these levels can be of concern and can lead to the AAQG, and therefore the NESAQ, being exceeded if trends are not curbed. The levels were chosen because it is generally considered that air quality in Otago is high, except for PM₁₀ in some areas, and that it could not be maintained or enhanced (Objective 6.1.1) if the guideline levels were adopted on their own.

The **Ministry for the Environment Levels** are those specified in the Ministry for the Environment’s AAQG and are defined as the levels adequate to protect the health of the general population, although the levels set for fluoride are set to protect plants and animals which have lower tolerances than humans. The level set for hydrogen sulphide is set to avoid the occurrence of odour problems. Contaminant concentrations above the Ministry for the Environment levels are considered in the “action” category as defined by the Ministry for the Environment publication *Environmental Performance Indicators: Proposals for Air, Fresh Water and Land (1997)*. These levels are considered unacceptable by national and international standards and public health or other effects are likely. Concentrations which exceed these levels must be urgently reduced.

These Schedule 1 guidelines are designed to protect the ambient air quality in any area of Otago. Any monitoring to test compliance with the guidelines should be undertaken so the measurements are representative of the area of concern. In this respect it is important that siting of the monitoring station follows the requirements of the specific methods listed in the table. The guidelines are not to be used as design concentrations for dispersion modelling of individual point sources.

The NESAQ (NESAQ Schedule 1) ambient air quality standards are statutory standards and are mandatory nationally. They are listed below:

NESAQ ambient air quality standards

Contaminant	Threshold Concentration	Permissible Excess	Monitoring Method
Carbon monoxide	10 mg/m ³ expressed as a running 8-hour mean	One 8-hour period in a 12-month period	AS 3580.7.1:1992
Nitrogen dioxide	200 µg/m ³ expressed as a 1-hour mean	9-hours in a 12-month period	AS 3580.5.1:1993
Ozone	150 µg/m ³ expressed as a 24-hour mean	Not to be exceeded at any time	AS 3580.6.1:1990
PM ₁₀	50 µg/m ³ expressed as a 24-hour mean	One 24-hour period in a 12-month period	AS/NZS 3580.9.6:2003 US Code of Federal Regulations, Title 40 – Protection of Environment, Vol 2 Pt 50, Appendix J
Sulphur dioxide	350 µg/m ³ expressed as a 1-hour mean	9-hours in a 12-month period	AS 3580.4.1:1990
	570 µg/m ³ expressed as a 1-hour mean	Not to be exceeded at any time	

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In the above table,

1-hour mean -

- (a) means a mean calculated every hour on the hour for the preceding hour; and
- (b) in relation to a contaminant at a particular location for a particular hour, means the mean of not more than 10-minute means, collected not less than once every 10 seconds, for the contaminant at that location during that hour

24-hour mean -

- (a) means a mean calculated every 24 hours at midnight for the preceding 24 hours; and
- (b) in relation to a contaminant at a particular location for a particular 24-hour period, means--
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 - (i) the mean level at which the contaminant is recorded in the air, by continuous sampling of the air at that location, throughout that 24-hour period; or
 - (ii) the mean of the 1-hour means for that contaminant at that location for the preceding 24 hours

running 8-hour mean -

- (a) means a mean calculated every hour on the hour for that hour and the preceding 7 hours to give 1 running 8-hour mean per hour; and
- (b) in relation to a contaminant at a particular location for a particular hour, means the mean of the 1-hour means for that contaminant at that location for that hour and the preceding 7 hours.