



Proposed amendments to the National Environmental Standards for Air Quality

PARTICULATE MATTER AND MERCURY EMISSIONS

Summary document



Ministry for the
Environment
Manatū Mō Te Taiao

New Zealand Government

Purea nei e koe i ngā hau ā Tāwhirimātea. **Let yourself be purified in the winds of Tāwhirimātea.**

Air as taonga

Air, like all other natural resources, is considered by Māori to be a taonga – an invaluable treasure – which has been gifted by their tipuna (ancestors) for the benefit and use of descendants. This gift imposes a responsibility on us as kaitiaki (guardians) to ensure we maintain good air quality now and for future generations.

The issue

In New Zealand, air pollution from particulate matter can affect human health. Exposure to particulate matter, particularly fine particles (PM_{2.5}), can cause disease and premature death from respiratory and cardiovascular causes, cause lung cancer, and exacerbate asthma and emphysema. These fine particles are mainly created by human activities. In New Zealand, the main source of PM_{2.5} is burning wood and coal for home heating during winter.

The National Environmental Standards for Air Quality (NESAQ) currently regulate particulate matter, but it is focused on PM₁₀, which includes the fine PM_{2.5} particles, as well as other coarse material. Some of these coarse particles come from natural sources, over which we have no control.

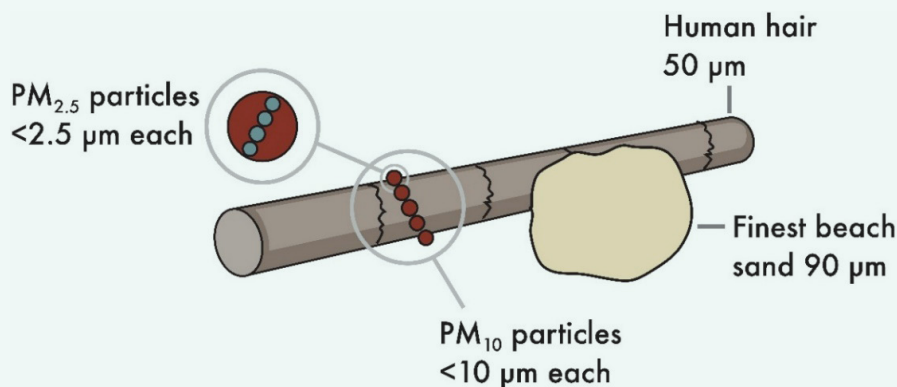
What is particulate matter?

Particulate matter (PM) is a collective term for solid and liquid particles suspended in the air and small enough to be inhaled. PM varies greatly in structure and chemical composition, depending on where it comes from. It also varies in the harm it can cause.

PM comes from human activities and natural sources. It is often classified according to its size because size determines how PM interacts with the environment and human body.

- ▶ PM₁₀ has a diameter of 10 micrometres (µm) or less.
- ▶ PM_{2.5} has a diameter of less than 2.5 µm and is a subset of the PM₁₀ range.

The figure below shows these relative sizes.



The proposal – amending the National Environmental Standards for Air Quality

The Government is proposing amendments to some provisions of the National Environmental Standards for Air Quality (NESAQ) that:

- ▶ take into account improved scientific understanding and evidence about the health impacts of particulate matter
- ▶ better target controllable sources of air pollution.

Particulate matter

For particulate matter, we propose:

- ▶ introducing PM_{2.5} as the primary regulatory tool to manage ambient particulate matter and establish both a daily and an annual standard for PM_{2.5} (fine particulate matter)
- ▶ retaining the PM₁₀ standard for managing potential issues for coarse particulates
- ▶ amending how we determine if airsheds¹ are polluted.

Domestic solid-fuel burners

For domestic solid-fuel burners we propose:

- ▶ reducing the emission standard for new solid-fuel burners to no more than 1.0g/kg (down from 1.5g/kg)
- ▶ including all types of new, domestic solid-fuel burners under the wood-burner regulations for emissions limits and thermal efficiency. This includes coal burners, multi-fuel burners, pellet burners, open fires, cookers, and water boilers.

Mercury emissions

New Zealand signed the Minamata Convention on Mercury in 2013. One of the three main steps we need to take to ratify the Convention is to set controls on emissions to air from mercury.

This requires amendments to the NESAQ that will:

- ▶ prohibit the use of mercury in particular listed industrial processes
- ▶ incorporate international best practice guidance that decision-makers must consider for listed sources.

Summary of proposals

Proposed amendments	
Particulate matter	
PM _{2.5}	Daily average PM _{2.5} standard – 25 µg/m ³ (three or less exceedances allowed in a 12-month period) Annual average PM _{2.5} standard – 10 µg/m ³ Monitoring required in all airsheds Publicly notify breaches Replace PM ₁₀ with PM _{2.5} for ‘offset’ and open fires provisions
PM ₁₀	PM ₁₀ standard and requirement to monitor retained Publicly notify breaches
‘Offset’ discharges in polluted airsheds	Reflect change from PM ₁₀ to PM _{2.5} standards ‘Polluted’ if either daily or annual PM _{2.5} standards breached, averaged over previous five years PM ₁₀ standard used where the airshed does not have yet have adequate, meaningful PM _{2.5} data Decline new consent applications to discharge PM _{2.5} in a polluted airshed, unless discharge is offset within same airshed
Solid-fuel burners	
Emissions standard for burners	No more than 1.0g/kg Updated and/or appropriate methods for measuring
Thermal efficiency standard for burners	No less than 65 per cent (no change) Updated and/or appropriate methods for calculating
Application of standard for burners	Applies to all newly installed, domestic burners including: open fires, wood, coal, pellet and multi-fuel burners, cookers, and water boilers
Sold-fuel burning open fires prohibited	Reflect change from PM ₁₀ to PM _{2.5} standards Applies indefinitely when either daily or annual PM _{2.5} standard is breached
Monitoring	
Monitoring methods	Updated and/or appropriate methods for monitoring PM ₁₀ and PM _{2.5}
Mercury	
Use of mercury in industrial processes	Prohibit use of mercury in industrial processes specified in Annex B of the Minamata Convention
Emissions that may contain mercury	Incorporate by reference international best practice guidelines for emissions sources specified in Annex D of the Minamata Convention

Note: This table only includes the provisions we expect to amend.

1 An airshed is a geographic area for air quality management which extends upwards from ground level, with no upper limit.

Timing, implementation and transition

The amendments to the NESAQ would come into immediate effect once gazetted.

Transitional provisions may be needed to allow time for compliance. For example, some councils may need to purchase additional monitoring equipment. Transitional provisions are proposed:

1. for regional councils and unitary authorities to start monitoring PM_{2.5}, if they do not already do so
2. to specify how the standards will apply to newly non-compliant burners that have been purchased, but not yet installed.

Our air, your say

The Government is interested in your views about the proposals summarised in this document.

The discussion document and information about the consultation process, including how to make a submission, can be found at:

www.mfe.govt.nz/consultations/improving-our-air.

Submissions close at 5pm on 24 April 2020.

You can make a submission in two ways:

1. Use our online submission tool, available at: www.mfe.govt.nz/consultations/improving-our-air. This is our preferred way to receive submissions.
2. Write your own submission by answering the questions in the discussion document.

Email your submission (as a PDF or Word document) to:

AirQualityNESsubmissions@mfe.govt.nz

Post your submission to:

Air Quality NES Consultation
Ministry for the Environment
PO Box 10362
Wellington 6143

Direct any queries to:

AirQualityNESsubmissions@mfe.govt.nz