

June 2024

Health control plan resources

Atmospheric contaminants (non-diesel exhaust emissions)

What is an atmospheric contaminant?	Why is it a health hazard?	Exposure monitoring requirements	Health monitoring requirements
<p>There are different forms of atmospheric contaminants</p> <p>Dusts Airborne solid particles</p> <p>Fibres Solid particles where the length is longer than the width</p> <p>Fumes Airborne solid particles condensed from a vaporous state</p> <p>Mists Airborne droplets of substance</p> <p>Smoke Particles generated from incomplete combustion of fuel</p>	<p>Airborne dusts, including coal and crystalline silica are a major concern for the mining industry as they can cause dust lung diseases.</p> <p>The health impacts of dust depend on the particle size.</p> <ul style="list-style-type: none"> Inhalable dust – particles less than 0.1mm in diameter that are inhaled but are too large to reach the narrowest areas of the lungs. The body’s natural defence systems typically expel these particles but they can irritate the upper respiratory tract. respirable dust - particles that are less than 0.01mm in diameter and invisible to the naked eye. These particles reach the deep 	<p>In NSW mines no person is to be exposed to an airborne concentration (measured in the breathing zone of the person) of respirable dust that exceeds 3 mg/m³ (or 1.5 mg/m³ in the case of a coal mine); and a personal exposure concentration of 10 mg/m³ for inhalable dust. Exposure standards for individual substances also must be satisfied within these overall limits. For example, the exposure standard for crystalline silica is 0.05 mg/m³.</p> <p>Sampling and analysis of airborne dusts should be undertaken with workers being fitted with personal monitoring devices. For coal mines, and non-coal mines that have determined crystalline silica as a hazard at their site this sampling and analysis should be in accordance with a</p>	<p>Health monitoring should be undertaken by an occupational physician and includes:</p> <ul style="list-style-type: none"> demographic, medical and occupational history records of personal exposure completion of a standardised respiratory questionnaire standardised respiratory function test (spirometry) chest Xray.

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<p>Vapour</p> <p>Molecular dispersion of material, normally liquid at ambient temperature</p> <p>Gas</p> <p>Molecular dispersion of material, boils below ambient temperature</p>	<p>alveolar region of the lung where the contaminant can become trapped in the narrow airways. The body's natural defence system causes scar tissue to develop and effects the ability of the lungs to expand and take in sufficient air or creates a 'blockage' in the alveoli, which restricts the transference of oxygen into the blood stream.</p>	<p>licence, and at the locations and frequency as prescribed in schedule 6 of WHS (MPS) Regulation 2022. In addition, Order 42 under the <i>Coal Industry Act 2001</i> provides for Coal Services Pty Ltd to conduct dust monitoring at coal mines consistent with the provisions for sampling and analysis under the WHS (MPS) Regulation 2022.</p> <p>Exposure limits for airborne dust are expressed as a Time Weighted Average (TWA), which are the maximum average airborne concentration of a substance when calculated over and 8-hour working day, for a five day working week.</p> <p>Short term exposure limits (STEL) are limits that have been established for atmospheric contaminants that have been identified where higher exposures can be tolerated in small periods. The criteria for STEL is the exposure should not be more than 15 minutes, nor should the frequency of exposure exceed more than four times a day with a minimum of 60 minutes break between exposures.</p> <p>See Safe Work Australia airborne contaminants guidance.</p>	

Controls for atmospheric contaminants (non-diesel exhaust emissions)

What are the controls?

- The hierarchy of controls, when applied to managing risks looks at firstly eliminating the need for the person to work near the dust.
- Isolation controls would predominantly look at putting a barrier between the person and the dust.
- Engineering controls either look at ways to withdraw dust from the atmosphere such as extraction fans and local exhaust ventilation (LEV) or introduce breathable atmosphere through dilution ventilation.
- Respiratory protective equipment as a control may be necessary in some circumstances but should be seen as a last resort. To be effective workers need training to ensure correct fit and use to maximise the effectiveness of the equipment.

What are the legislative obligations with regards to health records?

Health records with relation to atmospheric contaminants should be kept for 30 years.

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