

NSW mining and extractives industry

What is diesel particulate matter (exhaust particles)?	Why is it a health hazard?	What are the exposure monitoring requirements for the health hazard	What are the health monitoring requirements for the health hazard
<p>Diesel fuel produces harmful emissions made up of aerosols, vapours, gases and particulates when not fully combusted. Exhaust from diesel engines is more than likely to produce these harmful health effects over regular fuels, because of its higher ignition point.</p>	<p>The particulate matter along with gases, aerosols and other vapours produced is of such small size that it can be readily breathed into the lower regions of the lungs.</p> <p>Short term exposure to high concentrations of diesel exhaust can irritate the eyes, nose, throat and lungs and cause light-headedness, coughing, phlegm and nausea. Very high levels of diesel exhaust exposure can lead to asphyxiation from carbon monoxide poisoning.</p> <p>Long term exposure (chronic) can worsen asthma and allergies and increase the risk of heart and lung disease.</p> <p>Diesel engine exhaust emissions contain many known carcinogenic substances and because of this and its size, there is epidemiological evidence that indicates ongoing exposure may result in an increase in the risk of lung cancer. It is the elemental carbon of the particulate that is carcinogenic.</p>	<p>The recommended reasonably practicable limit for workers at risk of diesel particulate matter (DPM) exposure is 0.2 mg/m³ or 0.1 mg/m³ in the elemental carbon range.</p> <p>Sampling and analysis of diesel particulate should be undertaken with workers being fitted with personal monitoring devices.</p>	<p>Where results indicate that worker exposure is above 0.2 mg/m³ DPM or 0.1 mg/m³ EC:</p> <ul style="list-style-type: none">→ an investigation should be conducted and a resample taken after any corrective actions→ workers should be advised of the incident and recommendations to prevent a reoccurrence. <p><u>Note:</u> This exposure limit is based on the diesel particulate causing irritation and not based on exposure limits that are cancer related.</p> <p>No exposure limits related to cancer have been determined and therefore the occupational exposure limit may not be a sufficient cancer related exposure limit.</p> <p>For information please refer to the Work Safe Australia guide Hazardous chemicals requiring health monitoring.</p>

Controls - Diesel particulate matter / exhaust particles

- Good ventilation is an essential control measure in enclosed work environments, underground and workshop areas (0.06 m³ of ventilation current for each kW of engine power).
- Control the amount of diesel vehicles or plant operating in an area.
- Maintain well-tuned engines.
- Use low sulphur fuels.
- Use alternate power engines such as electric or propane.
- Improve road conditions such reducing pot holes will help reduce the over-revving of the engine.
- Educate workers on how driver behaviour affects emissions.
- Catalytic converters on diesel equipment can assist in reducing harmful emissions by more fully oxidising organic substances.
- Fully enclose and seal driver cabins.

What are the legislative obligations with regards to health records?

Records relating to exposures and health monitoring results are to be held by the mine for 30 years. See clause 50 Work Health and Safety Regulation 2017.