

Mine dust and you

Key messages

Some activities at mines release small particles of dust into the air, also known as particulate matter (PM).

Breathing in PM can be harmful to your health. Health effects can occur after both short-term exposure (hours to days) and long-term exposure (many years).

If you are concerned about being exposed to PM from a mine or are experiencing health symptoms, speak to your doctor. You can also contact your local Public Health Unit on **1300 066 055**.

The NSW Environment Protection Authority (EPA) regulates the environmental and human health impacts of mines. If you think a mine is polluting the environment, see the NSW EPA factsheet *How the EPA regulates mines* for advice on what you can do.

What is particulate matter?

Particulate matter, also known as particle pollution or PM is a term used to describe extremely small particles and liquid droplets in the air.

PM can be made up of acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles or allergens (such as fragments of pollen or mould spores).

Sources of PM include natural processes (such as sea spray, pollen or bushfire smoke) and human activities such as car and truck exhausts, smoke from wood heaters and industrial emissions).

How does particulate matter affect the body?

Exposure to PM can be harmful to health. The health effects depend on the size, structure and composition of the PM and the health of the person.

In particular, the size of PM determines how it affects the body:

- Larger particles (those with a diameter of more than 10 micrometres) tend to remain in the throat and nose, and may not travel down the airways in the lungs. These particles can irritate the eyes, nose and throat.
- PM10 (particles with a diameter of 10 micrometres or less) are small enough to pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects.

- PM2.5 (particles with a diameter of 2.5 micrometres or less) are so small they can get deep into the lungs and into the bloodstream. Exposure to PM2.5 over short (hours to days) and long (years) periods can lead to adverse health effects.

Some of the components of PM are likely to be more harmful to health than others. However, the specific components that are most harmful to health are not yet well understood.

You may not be able to see PM in the air, but it can still be harmful to health.

What are the health effects of exposure to particulate matter?

Health effects can occur after both short-term exposure (hours to days) and long-term exposure (many years). Short-term exposure may worsen the symptoms of diseases you already have while long-term exposure may cause new diseases and increase how quickly chronic diseases progress.

Short-term exposure (hours to days) to PM10 and PM2.5 can lead to:

- irritated eyes, nose and throat
- worsening symptoms of asthma and lung diseases such as chronic bronchitis (also called chronic obstructive pulmonary disease or COPD)
- heart attacks and arrhythmias (irregular heartbeat) in people with heart disease
- increases in hospital admissions and premature death due to diseases of the respiratory and cardiovascular systems.

Long-term exposure (many years) to PM10 and PM2.5 can lead to:

- reduced lung function
- development of cardiovascular and respiratory diseases
- increased rate of disease progression
- reduction in life expectancy.

Low levels of exposure to PM have been associated with health effects. Even small increases in the amount of PM breathed can potentially increase the risk of health effects. Air quality guidelines and standards are used to reduce exposure and health risks for the community.

Who is affected by particulate matter?

Everyone can be affected by PM but some people are at higher risk including:

- infants and children
- older adults
- people with respiratory conditions such as asthma, bronchitis and emphysema
- people with heart disease
- people with diabetes.

Do mines generate particulate matter?

Mining is the process of extracting materials from the earth and may occur on the surface of the earth (open-pit mines or quarries) or underground.

All types of mines may generate different types of PM through a variety of activities. PM_{2.5} is generated by vehicle and mobile equipment exhausts. PM₁₀ and particles larger than PM₁₀ are generated by:

- mechanical disturbance of rock, soil and other materials by dragline or shovel, bulldozing, or blasting
- vehicles on dirt roads
- wind blowing over bare ground and different types of stockpiles.

Can mine dust contaminate drinking water?

Yes, dust can land on house roofs and flow into water tanks during rain. To reduce the amount of dust being washed into tanks, NSW Health recommends using a first flush device to stop the first bit of rainwater from entering the tank. The NSW Health Rainwater tanks factsheet provides further advice on how to maintain water tanks for safe drinking.

Can mine dust affect the amenity of my local area?

For some people, dust from mines may affect the amenity, or attractiveness, of the local area. Concerns from the community often relate to visible dust plumes and dust sources from short-term episodes of high emissions, such as from blasting. Other amenity impacts include dust deposition on houses or clotheslines.

How are mines regulated?

In New South Wales, the NSW Department of Planning and Environment regulates mines through conditions of consent that are issued by the Department when approving the development. Conditions of consent set out a wide range of conditions for the operation of the mine and can require mine operators to monitor PM levels at the mine and notify affected residents within 7 days if PM levels exceed the limits in the consent.

The NSW Environment Protection Authority (EPA) regulates the environmental and human health impacts of mines through Environment Protection Licences. Environment Protection Licences can only be issued after a consent is granted and must be substantially consistent with the consent. Environment Protection Licences can set limit, operating, monitoring and reporting requirements.

Environment Protection Licences can require mine operators to implement procedures to minimise, monitor and report dust from their operations. Requirements can be tailored to each site based on the risks identified at the mine.

What can I do if I am concerned about mine dust?

The NSW EPA regulates the environmental and human health impacts of mines. If you think a mine is polluting the environment, see the NSW EPA factsheet How the EPA regulates mines for advice on what you can do.

If you are concerned about being exposed to PM from a mine or are experiencing health symptoms, speak to your doctor. You can also call your local Public Health Unit on **1300 066 055**.

There are also some steps you can take to reduce your exposure to air pollution more generally, including:

- Checking current and forecast air quality in your area through the NSW Department of Planning and Environment
- Avoiding exercising at times when air quality is poor
- Avoiding exercising near busy roads and industrial areas
- Reducing air pollution inside your home by using exhaust fans and ventilating the house often and not using unflued gas heaters and wood-fired heaters.

For more information, see the NSW Health website [Air quality – Simple steps to protect yourself](#).

Useful links

- [NSW Health – Air quality](#)
- [NSW Health – Air quality – Simple steps to protect yourself](#)
- [NSW Health – Rainwater tanks](#)
- [NSW Environment Protection Authority – How the EPA regulates mines](#)
- [NSW Department of Planning and Environment – Current and forecast air quality](#)