

NSW mining and extractives industry

What are hazardous substances?

Hazardous substances are mixtures, chemicals and/or materials that pose a significant health and safety risk if not stored, used or managed properly.

Hazardous substances can be in the form of:

- dust - airborne solid particles
- fibres - solid particle where length is longer than width
- fumes - airborne solid particles condensed from a vaporous state
- mists - airborne droplets of substance.
- smoke - particles generated from

Why are they a health hazard?

Hazardous substances are used variously in mining and come in many forms, including airborne coal/silica dust, solvents, hydrocarbons, acids and alkalis. They may be a liquid or airborne.

Hazardous substances can be toxic or carcinogenic. Airborne dusts can cause lung disease while chemicals which are inhaled, absorbed or ingested can have health impacts on a range of organs in the body. Chemicals which are toxic or carcinogenic are listed in Schedule 14 of the WHS Regulation 2017.

Hazardous substances can also cause skin damage, such as chemical burns and dermatitis.

The assessment of health risks from hazardous substances involves gaining an understanding of the situations in which people can be exposed to, or come into contact with the substance, including the

What are the exposure monitoring requirements for the health hazard?

The process of exposure monitoring can be complex, and as such it is recommended that expert assistance from a competent individual should be sought. A suitable qualified occupational hygienist should be used in the process.

Biological monitoring is required when chemicals are absorbed through the skin ingested or inhaled. For hazardous substances that are in the form of airborne particulates, see resource 'Atmospheric Contaminant'.

There are different exposure standards depending on the substance. To ensure the correct exposure standard is being complied with for the chemical hazards at your workplace, refer to Safe Work Australia - *Workplace Exposure Standards for Airborne Contaminants* 2013.

What are the health monitoring requirements for the health hazard?

Depending on the substance, there may be different health monitoring requirements. Nonetheless common health monitoring requirements for hazardous substances include:

- collection of demographic data
- work history
- medical history
- physical examination
- chest x-rays/ spirometry
- blood tests.

For information please refer to the guide [hazardous chemical requiring health monitoring](#).

Hazardous substances

What are hazardous substances?

- incomplete combustion of fuel
- vapour - molecular dispersion of material, normally liquid at ambient temperature
- gas -molecular dispersion of materials which boil below ambient temperature

Why are they a health hazard?

extent of exposure and how often this can occur.¹

Health risk depends on the type of substance, its concentration and the frequency and duration of exposure. These things are dependent on the nature of the work itself.

When assessing the risks, things to consider are the effects of exposure to hazardous substances, latency period and propensity for reoccurrence:

- acute - effects occur within hours of exposure
- chronic - effects occurs after repeated exposure
- latency - the period of time it takes before symptoms manifest.
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Controls for hazardous substances

¹ Safe Work Australia, *Managing risks of hazardous chemicals in the workplace- Code of Practice 2012*



What are the controls?

The hierarchy of controls, when applied to managing risks looks at first eliminating the need for the use of a hazardous substances:

- Isolation controls would predominantly look at putting a barrier between the worker and the chemical.
- Engineering controls either look at ways to withdraw hazardous substance from the atmosphere such as extraction fans/flumes and ventilation or improve the atmosphere by using ventilation.
- Substitution of a hazardous chemical for a chemical that is less hazardous is the most commonly practiced control, due to its practicality.
- Training and procedures for use of hazardous substances are the most commonly used administrative controls or control supports.
- Personal protective equipment or respiratory protective equipment are also used as a control.

What are the legislative obligations with regards to health records?

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