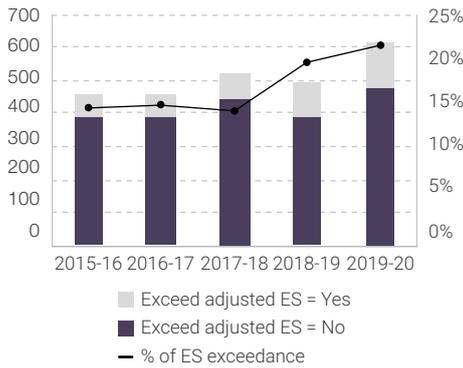


Welding fumes samples and ES exceedance in the last 5 financial years



Exposure standard (ES) represent the airborne concentration of a particular substance or mixture that must not be exceeded to protect the health of workers. It has been developed for conventional work shifts of five consecutive 8-hour work days, followed by two days off (40-hour work week). ES is adjusted accordingly if the work shift is more than 8 hours.

For more information on exposure standards see [Guidance about dusts and other airborne contaminants](#)

From the welding samples in 2019-20 it was observed that:

- 22% of the 611 samples taken in this period exceed the adjusted ES
- 28% of samples that exceed the adjusted ES are at least two times over ES.

Health effects of welding fumes include metal fume fever, toxic metal poisoning and lung cancer. Effects of welding fumes can be long term, and symptoms may take decades to show. Therefore, it is important to take all required safety precautions when engaging in welding activities to minimise exposure.

Spotlight on *Mines Safety Bulletin* No. 154

Managing long-term exposure to carcinogenic welding fumes

24 August 2018

Contributory causes

The airborne hazards associated with welding vary depending on the working environment, type of metal and flux, and the chemical nature of paints or cleaners on weld surfaces. Exposure of workers to welding fumes is significantly increased when:

- there is inadequate local exhaust ventilation to draw the fumes away from the breathing zone of the worker
- there is no, or inadequate, personal protective equipment (PPE) used to protect the worker from particulates and gases produced during welding
- welders remove the helmet shield prior to complete dispersion of the fume cloud.

Spotlight on *Mines Safety Bulletin* No. 117

Preventing electric shocks during welding

22 December 2014



Contributory causes

The most common ways that a person becomes part of the welding electrical circuit are by:

- inadvertently touching exposed metallic or conductive parts during welding
- welding in wet or humid conditions, which increases the risk of inadvertent contact through
- water or sweat, which are conductive
- not using fit-for-purpose personal protective equipment (PPE)
- using a welding electrical circuit that is faulty due to inadequate testing and maintenance.

Some recent incidents



Outbreak of fire 20/08/20

A boilermaker was tasked with removing the bottom row of crusher concaves. To complete this task he was using a thermic lance to remove material to release the concave. During this process his trousers ignited, and sustained burns to his right leg. He was then taken to the medical centre for assessment, and then transferred to hospital for further treatment.

Assessing the risks



Before commencing work, assess the potential for exposure to welding hazards, such as:

- electrical shock from contact with live components
- radiation burns to the eyes or body due to the welding arc
- body burns from weld splatter or hot metal
- exposure to fire or explosions
- inhalation of fumes from the welding rod or surface being welded
- contact with noxious process materials in the work area.

Safe work practices

Examples include:



Keep the welding leads clear of your body and other people.



Do not weld while standing in water or out in the rain, and change any clothing that becomes wet.



Make work area safe by removing unnecessary equipment and any flammable material.

For more information see [Guidance about welding and other hot work](#)