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## Welding processes declared a carcinogen

This safety bulletin provides safety advice for the NSW mining industry.

### Issue

Through its planned assessment programs conducted at NSW mining operations, the Resources Regulator has identified that some mine operators have not identified or acted upon the reclassification of welding processes as a group 1 carcinogen.

Mine operators should ensure they acquire and keep up-to-date knowledge of work health and safety matters.

### Circumstances

There are more than 80 different types of welding and associated processes. Some of the most common types of welding are arc welding, which includes 'stick' or shielded metal arc welding, gas-shielded methods of metal inert gas (MIG) and tungsten inert gas (TIG) and plasma arc welding (PAW). Other processes such as air arc gouging are also common to the industry.

In 2017, welding fumes were reclassified by the International Agency for Research on Cancer (IARC Monogram -118) from a Group 2B (possibly carcinogenic to humans) to Group 1 (carcinogenic to humans). Also reclassified to a group 1 was ultraviolet radiation from welding processes as risk of skin and eye cancer.

### Investigation

Some mine operators have not identified the reclassification of welding processes as a group 1 carcinogen for worker exposure to both fumes and ultraviolet exposure.

It has been identified during recent planned inspections that mine operators are not consistently applying the principles of the hierarchy of controls to manage welding fumes. These inspections also identified:

- where respiratory protection in the form of air-stream welding helmets was provided, a higher order control such as local exhaust ventilation to remove the fume was not always considered or implemented
- where airstream helmets were not always individually issued and were not being used on a regular basis and that workers were not familiar with the care and maintenance and the replacement of filters on these units
- there was a reliance on natural or fan-forced ventilation to dilute fumes without consideration of other workers in the vicinity
- contract maintenance workers appeared to be better informed of the risks associated with welding fumes and were more compliant with the appropriate selection, use and maintenance of personal protection equipment (PPE)

- operators of underground mines had not considered the implications of contaminating the underground ventilation circuit with welding fumes and exposing other workers in the vicinity
- workers were not always provided with adequate information, training and instruction in the carcinogenic risk and appropriate controls for welding processes
- occupational hygiene monitoring of worker's exposure to welding fumes and ultraviolet radiation was not consistent across the industry.

## Recommendations

1. Welding processes must be subject to risk assessment, and the hierarchy of controls applied to controlling the risks associated with welding fumes.
2. Appropriate information and training should be provided to all workers at risk from welding fumes, including contractors.
3. Appropriate PPE must be provided to at-risk workers who undertake welding work.
4. Mine operators should develop and implement processes to monitor and assess compliance with identified risk controls.
5. Occupational hygiene assessment and monitoring programs should be expanded to incorporate worker exposure to welding fumes.

**NOTE:** Please ensure all relevant people in your organisation receive a copy of this safety bulletin and are informed of its content and recommendations. This safety bulletin should be processed in a systematic manner through the mine's information and communication process. It should also be placed on the mine's notice board.

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