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This publication is available on request in other formats for people with special needs.

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### For publication orders

Telephone: +61 8 9358 8154  
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**The advice provided in this pamphlet is basic safety and health information. Ensure you are familiar with your site procedures and, if uncertain, discuss this information with your supervisor and safety and health representative.**

## Mine safety matters

# Welding



**This pamphlet deals primarily with electric arc welding.**

## THE HAZARDS

Welding is hazardous when done:

- in a hazardous location
- with damaged or unsuitable tools and equipment
- without the correct personal protective equipment (PPE)
- using incorrect welding materials or procedures.

## WHAT CAN HAPPEN

Serious injuries, illness or death can be caused by:

- electric 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

### Welding equipment

- Ensure equipment conforms with relevant Australian Standards and is adequately rated for the job at hand
- Use hazard-reducing devices such as a voltage reduction device (VRD) or trigger switch
- Mobile machines must have a flexible supply cable and an isolating switch, and be protected by residual current devices (RCDs)

- Any auxiliary socket-outlets on the welding power source must also be RCD protected
- Two or more welding machines used in the same location must be connected in a way that minimises the voltage between electrode holders
- Display safety warning signage at all entry points to the welding area
- Use workplace shielding around the welding area to protect personnel from exposure to welding injuries
- All energy sources (e.g. air, electricity, process liquids) entering the work area should be isolated by authorised persons, and personal tags installed on all lock out components.

## Operation

- Operators must be trained and competent, and must wear the correct PPE, including welding mask, hearing protection, apron, gloves and respirator if required
- Read the welding rod material safety data sheet (MSDS)
- Follow safe working procedures
- Make work area safe by removing unnecessary equipment and any flammable material
- Use controls provided such as local exhaust ventilation
- Switch off the machine before moving it or connecting leads
- Safeguard the equipment from damage and report defects
- Never change the electrode or hold the work piece with bare hands
- Keep the welding leads clear of your body and other people
- The work lead must always be connected to the work or work table

- Insulate yourself from the ground and the work if possible
- Do not weld while standing in water or out in the rain, and change any clothing that becomes wet
- Switch off and remove the electrode from the welding hand piece when not required
- Report all shocks, burns and dangerous occurrences

### Wet locations and confined spaces

Additional safeguards include the use of:

- permit systems and observers in high risk or confined spaces
- direct current (DC) power sources, welding voltage reducers, or both
- isolating switches
- dry wooden formwork.

## Maintenance

- An electrician should check and test the machine at least quarterly, and the leads and accessories at least monthly
- Equipment should be visually inspected each day prior to use
- Repairs must be carried out by licensed electricians

For further advice, refer to Australian Standard *AS 1674.2:2007 Safety in Welding and Allied Processes, Part 2: Electrical* and *TN07 Health and safety in welding*, a technical note published in 2004 by Welding Technology Institute of Australia and adopted as a code of practice under the *Mines Safety and Inspection Act 1994*.



# Welding