



Mines Safety Bulletin No. 136

Subject: Safe use of angle grinders

Date: 03 November 2016

Background

An angle grinder is a common power tool used on mine sites for cutting, grinding, sanding and polishing. The portability and versatility of angle grinders means they can be used for a variety of tasks, each with its own hazards.



Example of a hand-held angle grinder

Summary of hazard

Contact with powered equipment with moving parts, such as angle grinders, can potentially lead to electric shock as well as abrasive, friction or cutting injuries.

Note: A recent incident from New South Wales illustrates the hazards involved in using these tools, when a person's hand was severed while working at home.

From 01 January to the 21 October 2016 the Department of Mines and Petroleum received 28 injury notifications for workers who were using either a four- or five-inch angle grinder.

In 32% of notifications the injury was a laceration. In one of these incidents, the worker was off work for 35 days, while in another incident, facial surgery was required.

In over 60% of all notifications an electric shock was received, either from the angle grinder directly, or alternatively, from the electrical lead, plug or generator.

The Department is concerned about the use and maintenance of these types of tools.

Contributory factors

Generally, an injury from an angle grinder can arise from:

- the angle grinder "kicking-back" while in operation
- poor work methods (e.g. one-handed operation) which result in a loss of control of the tool

- fluid (e.g. process liquors) coming into contact with the angle grinder while in use
- poor storage practices, resulting in the angle grinder's internals becoming damp
- electrical leads not being managed correctly
- undetected damage to the angle grinder, electrical leads or sockets prior to use
- not replacing or using the auxiliary handle when required.

Actions required

Safe systems of work and operator vigilance are critical when operating angle grinders. The following actions are recommended:

Management and supervisors

- Purchase and/or fit angle grinders with appropriate safety features (e.g. anti-kickback safety clutch, soft-start vibration-reducing handle, "dead-man" or paddle switch, noise-reduction grinding disc).
- Establish safe systems of work for tasks involving the use of angle grinders.
- Confirm workers are fully trained and competent to use an angle grinder, and are aware of the site's strategy for reducing the risk of hand-arm vibration syndrome.
- Provide adequate supervision for those required to use an angle grinder.

Supervisors and workers

- Conduct a task-based risk assessment before commencing work and review it if work conditions change.
- Determine if an angle grinder is the appropriate tool for the task being undertaken, paying particular attention to the materials being worked upon.
- Confirm the angle grinder has the appropriate safety features and is in good working condition, including all electrical leads and connections.

Workers

- Follow the site's safe system of work for the task.
- Use the correct disc for the task (e.g. do not use a cutting disc for grinding) and confirm that any after-market products are safe to use with the specific make and model of angle grinder.
- Use the recommended safety equipment provided, including all appropriate guards and personal protective equipment.

Further information

- Department of Commerce, Angle grinders, www.commerce.wa.gov.au/worksafe/angle-grinders
- WorkSafe Victoria, *Safe use of angle grinders – guidance note*, www.worksafe.vic.gov.au/info
- Department of Mines and Petroleum, *Manual tasks in mining fact sheet No. 7: Hand-arm vibration*, www.dmp.wa.gov.au/Safety/Information-sheets-and-16176.aspx

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