



Safety Alert

From the International Association of Drilling Contractors

ALERT 00-34

FATALITY: CUT - OFF WHEEL FRACTURES DURING USE

WHAT HAPPENED:

An air-powered angle grinder was being used to cut grooves into cast iron with a cut-off wheel. The cut-off wheel fractured during use and a large fragment of the wheel went through the worker's face shield and into the worker's face. The worker died as a result of the injury.

WHAT CAUSED IT:

The angle grinder's maximum rpm rating was not clearly visible on the grinder, but according to the manufacturer's specifications, the angle grinder is designed to operate at a maximum RPM of 7,600 at air pressure of 85 psi. In testing performed after the incident, the grinder appeared to be functioning according to the manufacturer's specifications and the air supply appeared to be the proper pressure. At the time of the incident, the cut-off wheel, which is rigid and flat was secured to the grinder's drive spindle with a depressed center-backing flange designed to fit grinding wheels having depressed centers. The wheel also was not designed for this type of hand-held cutting operation and was larger in diameter than what the grinder was designed for. The cut-off wheel's maximum safe operating speed of 4,500 rpm was less than the 7,600-rpm operating speed of the grinder. In addition, to allow the grinder to be used in tight and awkward locations, its guard had been removed and had not been replaced and the grinder's side handle had been removed, limiting the worker's ability to safely hold and position the grinder.

CORRECTIVE ACTIONS:

A JSA should be conducted for operations of this type. As a result of the investigation into this incident, the following recommendations were made and apply to all users of air-powered grinders:

- Supervisors must ensure that the manufacturer-supplied grinder guards are to be used at all times and only grinding/cutting wheels designed for specific air tools are used on them.
- All workers using grinders should receive grinder safety and job-specific instructions, including the use of personal protective equipment that is appropriate for the hazard to which workers are exposed.
- Grinders and other air-powered tools are to be operated within the manufacturer's stated range of operating pressures and speed. To ensure that this occurs, all grinder speeds should be posted and all personnel should be instructed as to the operating speed and air pressure each of the tools is to be operated at.
- Grinding wheels are to be selected based on the operating speed of the grinder, the type of grinder being used, the type of work being performed and manufacturer's recommendations.
- Install grinding wheels according to the manufacturer's recommended procedures.
- Inspect grinder abrasives such as cups, discs, and wheels for damage at the time they are delivered to the workplace and prior to each use.
- Abrasive stones, discs, and wheels should always include complete product information so that they can be used properly.
- Before placing the grinder down, be sure the wheel has stopped turning.

The Corrective Actions stated in this alert are one company's attempts to address the incident, and do not necessarily reflect the position of IADC or the IADC HSE Committee.

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