

### Safety Sheet 11 – Grinding Machinery

Consult the *Ontario Occupational Health and Safety Act and its Regulations, more specifically the Industrial Establishments – Regulation 851*, as well as the relevant *CSA Standard* for detailed information on grinding machinery.

A **grinding wheel** is defined as an expendable wheel that carries an abrasive compound on its border; generally made from a matrix of coarse particles pressed and bonded together to form a solid, circular shape.

A **ring test** (also referred to as an acoustic test) is a method to check if the wheel is in proper working order. To conduct the test, hold the grindstone by its centre and lightly tap the grindstone in four opposite corners with a non-metallic object (wooden mallet, plastic-handled screwdriver) and listen at every tap; a clear (metallic “ring”) sound indicates a solid grindstone while a muffled (dead) sound indicates the grindstone is cracked; see [“How to conduct a ring test”](#). Any wheel that is cracked should be discarded.

A **competent person** is defined by the Ontario Occupational Health & Safety Act as a person who (i) is qualified because of knowledge, training and experience to organize the work and its performance; (ii) is familiar with this Act and the regulations that apply to the work and (iii) has knowledge of any potential or actual danger to health & safety in the workplace.

#### Hazard classes:

- *Mechanical* – abrasions, contusions and fractures can occur if you are using a damaged grinder wheel;
- *Heat* – burns – ensure that fire extinguishers are adequately placed and no flammable products in the area;
- *Physical* – high noise levels can slowly hinder hearing capabilities; ear muffs/plugs are recommended;
- *Ergonomic* – muscular-skeletal disorders and back aches caused by orientation / setup of drill press among other factors;
- *Electrical* – unplug the equipment when performing maintenance; ensure that the equipment is properly grounded

#### Prior to starting the grinder:

- Competent person shall be assigned to the mounting, care, and inspection of abrasive wheels and grinding machines.
- All workers operating a grinding machine shall wear the appropriate personal protective equipment relevant to the particular hazards (safety glasses, face shield, respirator, hearing protection etc.).
- Inspection shall be conducted and documented; then regular inspections shall be conducted and records made available.

- Manuals and operating instructions for the grinding machine shall be made available to all workers.
- Check the manufacturing date on the grindstone label; dispose of expired ones.
- A grinding machine shall be inspected for defects prior to mounting (by conducting a ring test), and shall be mounted in accordance with the manufacturer's specifications (wheel properly mounted between flanges; guard(s) securely in place etc.).
- All rotating motor components are enclosed with adequate guarding materials.
- A grinding machine shall be provided with protective hoods that enclose the wheel (as close to the wheel as the work will permit); transparent guards still enable the operator to see what is going on.
- Adequate lock-out and emergency procedure has been developed for the specific equipment.

**Other Safety Requirements:**

- The maximum speed of the particular equipment shall be physically marked on the equipment and at no time shall the machine operate in excess of the manufacturer's recommended speed.
- Wet-grinding coolants (bench grinder only) are checked frequently and bearings regularly lubricated.
- A grinding machine will be stored where it will not be subjected to extreme temperatures (hot or cold) or be damaged from impact of surrounding objects.
- The work rest for a grinding wheel shall have a maximum clearance of 3 millimetres from the grinding wheel and be positioned above the centre line of the equipment.
- Make sure that electrical equipment is properly grounded and certified.
- Report any defects or poor safety conditions to your supervisor as soon as possible.

**When Operating a Grinder,**

**DO NOT:**

- Clamp a grinder in a vice to grind hand-held work-pieces.
- Adjust the equipment at any time when it is running.
- Leave the equipment unattended while in operation.