



Company Name: \_\_\_\_\_ Job Site Location: \_\_\_\_\_

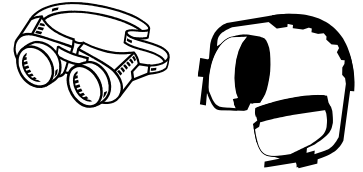
Date: \_\_\_\_\_ Start Time: \_\_\_\_\_ Finish Time: \_\_\_\_\_ Foreman/Supervisor: \_\_\_\_\_

**Topic 139: Portable Abrasive Wheels**

**Introduction:** Portable abrasive wheels come in a wide range of types and sizes. They are either electric, gas, or air powered and are used for cutting, shaping, and cleaning of metal, masonry, wood, and plastic materials. Various abrasive compounds – including diamonds – are bonded together with polymers into flat or cupped discs, or to circular blades and are designed to operate at high speeds and temperatures. Wire brush wheels and assorted sanding disks are used for cleaning, de-scaling, and paint preparation of metal and wood materials.

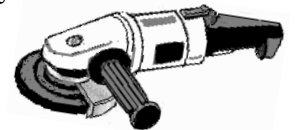
**A few of the primary categories of these tools are:**

- Water cooled and lubricated “wet saws” that use circular diamond blades allow smooth, precision cutting and shaping on dense, hard ceramic and masonry materials. Table mounted versions are used for cutting bricks and tiles while walk-behind versions are used for cutting control joints in concrete slabs. The water controls the blade temperature and the dust.
- Flat, circular blades are available to fit your skilsaw or chop saw with different abrasives compounds designed to cut metal or masonry. Roofers use masonry type blades on a skilsaw to cut roof tiles and usually the metal cutting blades are used on chop saws. Both applications generate extreme amounts of heat, sonic/acoustic levels, and particulates or vapors.
- Large gas powered circular cut-off saws are for heavy-duty use.
- Very small, high-speed “Dremel” types are for fine, intricate work.
- Flat (platen) or cupped faced grinding wheels are for free-hand grinding and shaping of metals, their welds, and other materials.



**Federal OSHA regulations and the American National Standards Institute (ANSI) B7.1-1970, Safety Code for the Use, Care, and Protection of Abrasive Wheels** direct the use of these safety guidelines for general operations:

- Employees using grinding tools and/or are exposed to the hazards of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, or vapors shall be provided with, and compelled to use, the particular personal protective equipment necessary to protect them from the hazard. This equipment includes eye and face, respiratory, hearing, and hand protection and shall be properly maintained to meet all applicable standards.
- All power grinding tools shall be maintained in a safe condition. When these tools are designed to accommodate guards, they shall be in place when the tool is in use. Safety guards shall be strong enough to retain flying fragments and withstand the effects of a bursting wheel.
- All grinding machines shall be supplied with sufficient power to maintain safe spindle speeds under normal operating conditions.
- All abrasive wheels shall be carefully inspected and “ring-tested” before mounting to ensure that they are free from cracks or defects. To perform a **sound or ring test**, wheels should be tapped gently with a light, non-metallic instrument. If they sound cracked or dead, they could fly apart during operations and should be discarded. An intact, undamaged wheel will give a clear metallic tone or “ring”.
- Only portable grinders with wheels 2 inches in diameter or less may be equipped with a positive on/off control switch. Grinders with wheels greater than 2 inches in diameter shall be equipped with a momentary contact on/off switch and may have a lock-on control.
- Grinders shall be used on a 3-wire grounded circuit or be of the approved double insulated type. Using the tool’s power cord for hoisting or lowering shall not be permitted.
- All grinding/cutting wheels shall fit freely on the spindle and must not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place.
- When grinding metal, it is easy to leave razor-sharp edges; be sure you take them off before walking away from a work piece.



**Conclusion:** Be aware of fire hazards before beginning work because sparks fly everywhere when grinding metal. Clear the work zone of any flammable material and keep a fire extinguisher close by. Remember that abrasive wheels are high-speed, rotary tools and appropriate clothing should be worn. Avoid long, loose sleeves and necklaces when grinding; if you have long hair, keep it tied back. By following these safety guidelines you can complete your grinding or cutting operations safely.

**Work Site Review**

Work-Site Hazards and Safety Suggestions: \_\_\_\_\_

Personnel Safety Violations: \_\_\_\_\_

**Employee Signatures:** \_\_\_\_\_  
*(My signature attests and verifies my understanding of and agreement to comply with, all company safety policies and regulations, and that I have not suffered, experienced, or sustained any recent job-related injury or illness.)*


**Forman/Supervisor’s Signature** \_\_\_\_\_

*These guidelines do not supercede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.*