1 **Purpose:**

To provide information on the inspection, maintenance and operation of grinders and abrasive wheels to minimize the potential for personal injury. There are two basic types: stationary grinders, such as bench or pedestal grinders and portable hand grinders.

2 **Scope:**

This procedure addresses safe performance for grinders and abrasive wheels for the PPG Lake Charles complex for activities performed within the facility.

3 **Responsibilities:**

   3.1 The equipment operator shall be responsible for wearing the required personal protective equipment, and for checking equipment (abrasive wheel, grinder, wire brush, etc.) for proper operating condition prior to use.

   3.2 The direct operation, maintenance and inspection shall rest on the Area Foreman/Owner of the equipment.

   3.3 A qualified individual and at least one alternate shall be designated by the Area Foreman/Owner of the grinder to assure periodic inspections following the criteria on the *Pedestal and Table Grinder Inspection and Repair Form*, #30B-14.

4 **Inspection of grinder and abrasive wheel:**

   4.1 Inspection. Immediately before mounting, all wheels shall be closely inspected and sounded by the user (ring test) to make sure they have not been damaged in transit, storage, or otherwise.

   4.2 Wheels should be tapped gently with a light nonmetallic implement, such as the handle of a screwdriver for light wheels, or a wooden mallet for heavier wheels. If they sound cracked (dead), they shall not be used. This is known as the "Ring Test".

   4.3 The spindle speed of the machine shall be checked before mounting of the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel.

   4.4 Pedestal and table grinders shall be inspected for obvious defects prior to each use. Frequent (quarterly) inspections shall be conducted in accordance with the inspection criteria listed on form #30B-14 by a qualified inspector.
4.5 After inspecting the equipment, correction of all unsatisfactory items or conditions shall be made by the inspector. The inspection tag (SAP # 5100255) on the equipment will be legibly signed and dated by the inspector.

4.6 If any unsatisfactory condition or item cannot be corrected by the inspector, the equipment is to be tagged out of service and Form #30B-14 filled out and sent to the Area Foreman for follow-up and repair.

4.7 Once all items have been corrected, the tag will be removed and re-inspected. The inspection tag will then be signed and dated.

4.8 Dressing of wheels shall be done by the grinder inspector using approved dressing tool in good condition, and with proper protective equipment.

4.9 Maintenance on grinders shall be performed only by qualified personnel.

5 Personal Protective Equipment:

5.1 Before working with a grinder, secure loose clothing (i.e., snap, button, zip, tie, etc.) and confine long hair, scarves, ties, and dangling jewelry, which can be snagged by the grinder and wrap around the shaft quickly.

5.2 Wear gloves to protect hands from flying particles and sharp edges created during the grinding operation. Gloves should be suitable for task and not be loose fitting.

5.3 Gloves are required when operating a hand held portable grinder.

5.4 Grinding operations which have the potential to impact an individual(s) with flying particles/debris will require personnel near the operation to wear at a minimum safety goggles while grinding operations is in effect.

5.5 Full face shield must be worn in addition to safety glasses or goggles by the equipment operator (and others subject to the hazards of the work area) anytime the equipment is operating. Welding hoods may be worn in place of a full face shield.

5.5.1 Exception to the required face shield: Plant A machine Shop: When grinding on #4 and #5 pedestal grinders, the fixed plexiglas guard is equivalent protection to a faceshield when grinding tools, so a face shield is not required. Craftsmen must be positioned above the grinding (protection afforded by the Plexiglas shield above) to be able to see the gap and angle between tool and wheel. This procedural exception replaces Deviation # 8803.

5.6 A respirator may be needed to prevent inhaling dust from toxic metals (lead, galvanized steel, stainless steel, manganese, etc.).
6 Special Considerations:

6.1 Check to insure that guards, shields, tool rests, and protective tongues are appropriately and securely attached on recommended spacings, i.e. one-eighth inch gap between tool rest and wheels.

6.2 Grind only on the appropriate surface of the wheel to avoid pieces of it breaking off and flying like shrapnel.

6.3 Correct a wheel that is loose or out of balance prior to use.

6.4 Keep tool rests adjusted as close to the wheel as possible without touching it.

6.5 Tool rests must be slightly above the center line of a wheel. Avoid striking a grinding wheel with any object.

6.6 Make adjustments to the wheel only when the power has been shut off and the wheel comes to a stop.

6.7 Immediately report any grinding wheel that seems to be unsafe.

7 Operation of grinders and abrasive wheels:

7.1 Apply work gradually to any wheel, especially a cold one, as it could fragment.

7.2 When bringing machine up to speed, stand to one side until wheel is running smoothly at proper rpm.

7.3 Work shall be applied to wheel only after full speed has been attained for several seconds with operator out of direct line with wheel.

7.4 Application of work to wheel shall be done gradually to allow the wheel to warm up before applying pressure.

7.5 Work shall be done only by portion of wheel designed for application; do not apply work to sides of straight wheels designed for edge grinding only.

7.6 Wheels shall be used only for appropriate work; no non-ferrous materials such as aluminum and other soft materials shall be ground on general purpose wheels. Such material tends to clog wheel pores, cause heat buildup and consequent stress in wheel may cause it to shatter.

8 References:

### Inspection Checklist: PEDESTAL AND TABLE GRINDER INSPECTION AND REPAIR REPORT

**AREA:** ________________  
**GRINDER NO:** ___________  
**SAC NO:** ________________

#### ITEMS TO BE CHECKED

- ✓ = SATISFACTORY  
- + = CHANGES MADE AS REQUIRED  
- = REMARKS

#### GENERAL

1. WHEEL CONDITION  
2. ELECTRIC LIGHTING  
3. SAFETY SHIELDS  
4. MOTOR OPERATION  
5. VISUAL INSPECTION OF POWER CORD/CONDUIT (FRAYS, CRACKS, ETC.)

#### GRINDING WHEEL

1. GRINDING WHEEL IN GOOD WORKING CONDITION (SEE NOTE)  
2. CONTACT SURFACES ARE FLAT AND FREE OF FOREIGN MATTER  
3. BLOTTERS AND FLANGES ARE OF CORRECT SIZE

#### WORK RESTS

1. RIGIDLY CONSTRUCTED, STABLE, ADJUSTABLE  
2. REST IS ADJUSTED TO WITHIN 1/8” OF WHEEL

#### SAFETY GUARD

1. SAFETY GUARD COVERS SPINDLE, NUT AND FLANGES  
2. GUARD IS IN ALIGNMENT WITH WHEEL  
3. SECURELY BOLTED

#### PROTECTIVE TONGUE

1. DISTANCE BETWEEN TONGUE & EDGE OF WHEEL IS LESS THAN 1/4”.

#### RULES AND GUIDELINES

**GRINDING WHEEL** - ALL ABRASIVE WHEEL REPLACEMENT IS TO BE CONDUCTED BY QUALIFIED PERSONNEL

1. IMMEDIATELY BEFORE MOUNTING, ALL WHEELS SHALL BE INSPECTED AND SOUNDED BY THE USER (RING TEST) TAPPING THE WHEEL GENTLY WITH A NON-METALLIC IMPLEMENT (E.G., SCREWDRIVER HANDLE, WOODEN MALLET); IF THEY SOUND CRACKED (DEAD), THEY WILL NOT BE USED.  
2. ALL CONTACT SURFACES OF WHEELS, BLOTTERS, AND FLANGES SHALL BE FLAT AND FREE OF FOREIGN MATTER  
3. ALL ABRASIVE WHEELS SHALL BE MOUNTED BETWEEN FLANGES WHICH SHALL NOT BE LESS THAN ONE-THIRD THE DIAMETER OF THE WHEEL. BLOTTERS OF COMPRESSIBLE MATERIAL (PLACED BETWEEN WHEEL AND FLANGE) SHALL COVER THE ENTIRE AREA OF WHEEL FLANGES.

**WORK RESTS**

1. WORK RESTS WILL BE OF RIGID CONSTRUCTION AND DESIGNED TO BE ADJUSTABLE TO COMPENSATE FOR WHEEL WEAR.  
2. RESTS SHALL BE KEPT ADJUSTED CLOSELY TO THE WHEEL WITH A MAXIMUM OPENING OF 1/8”.  
3. WORK RESTS ARE NOT TO BE USED WITH WIRE BRUSH WHEELS.

**SAFETY GUARD**

1. THE SAFETY GUARD SHALL COVER THE SPINDLE, NUT, AND FLANGE PROJECTIONS.  
2. THE GUARD SHALL BE MOUNTED SO AS TO MAINTAIN PROPER ALIGNMENT WITH THE WHEEL.  
3. THE STRENGTH OF THE GUARD FASTENERS SHALL EXCEED THE STRENGTH OF THE GUARD.

**PROTECTIVE TONGUE**

2. PROTECTION TONGUE IS OPTIONAL WITH WIRE BRUSH WHEEL.

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**INSPECTOR**  
30B-14  
**DATE**  
(Rev. 10/2010)