Hand and Portable Powered Tools Program

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1. PURPOSE

To establish and maintain a program to ensure that the hazards associated with using hand and portable powered tools are recognized and the necessary safeguards, education and / or protective equipment are provided for the protection of the employee.

2. SCOPE

This Program applies to all employees of Mosaic Phosphate facilities and Contractors working at Mosaic facilities.

3. DEFINITIONS

3.1 Come-a-long: A lever operated hand puller used to assist in pulling equipment. May also be used for lifting (only if approved by the manufacturer on the come-a-long).

3.2 Cutting-off: The slicing or parting of any material or part.

3.3 Grinding: The use of an abrasive to wear away at the surface of a workpiece to change its shape.

3.4 Grinding wheel: An expendable wheel that is composed of an abrasive compound used for various grinding, honing, lapping, sanding and cutting applications. The wheels are generally made from a matrix of coarse particles pressed and bonded together to form a solid, circular shape, various profiles and cross sections are available depending on the intended usage for the wheel. They may also be made from a solid steel or aluminum disc with particles bonded to the surface. The manufacture of these wheels is a precise and tightly controlled process, due not only to the inherent safety risks of a spinning disc, but also the composition and uniformity required to prevent that disc from exploding due to the high stresses produced during rotation.

3.5 Hand Tools: Non-powered, hand operated tools.

3.6 Hoists: All manual or powered lifting devices (hoists or chain falls) three tons or under, without ability to travel, and not permanently installed. Everything else is considered an overhead crane (see the Overhead Cranes Program).

3.7 Jacks: An appliance for lifting and lowering or moving horizontally a load by application of a pushing force. Includes lever and ratchet jacks, screw jacks and hydraulic jacks.

3.8 Portable Hand Grinder: Also known as an angle grinder, side grinder, end grinder or disc grinder, is a handheld power tool used for cutting, grinding and polishing.

3.9 Powder-Actuated Tools: Explosive-actuated tools containing precise amounts of special powder to maintain consistent driving performance.

3.10 Power Lawnmower: Power lawnmowers of the walk-behind, riding-rotary, and reel power lawnmowers designed for sale to the general public. Does not include a walk-behind mower which has been converted to a riding mower by the addition of a sulky, or flail mowers, sickle bar mowers, and mowers designed for commercial use.

3.11 Power Tools: Tools powered by electrical, pneumatic, or hydraulic power, or fuel driven.

3.12 Ring Test: A manual test used to determine the presence of damage in the bonded grinding wheels. The wheel should be tapped gently with a light non-metallic instrument, such as the handle of a screwdriver. Wheels that emit a ringing sound are likely undamaged. Rotate the wheel 45º and repeat the test. IF cracked or damaged there will be a dead sound and not a clear ring.

3.13 Workpiece: A part that is being worked on. It may be subject to grinding, cutting, welding, forming or other operations.

4. PROCEDURE

4.1 General

4.1.1 All tools and equipment shall be visually inspected prior to use and all safety devices shall be installed and properly adjusted.

4.1.2 Tools shall not be used beyond the design capacity intended by the manufacturer where such use may create a hazard to persons.

4.1.3 Iron or steel hand tools may produce sparks that can be an ignition source around flammable substances. Spark-resistant tools made of non-ferrous materials should be used where flammable gases, highly volatile liquids and other explosive substances are stored or used (see Welding / Cutting Hot Work Program).

4.2 Mechanical Guarding

4.2.1 Guarding on portable powered tools shall be provided to protect employees from hazards such as those created by points of operation, ingoing nip points, rotating or moving parts and flying chips and sparks.

4.2.2 Guards shall be substantially secured in place.

4.2.3 Portable powered tools shall not be placed in service until all guards are in place and checked to ensure that they are secured.

4.2.4 Portable powered tools shall be shut down and de-energized before any guards are removed.

4.3 Machine Tools

4.3.1 Machine tools shall be guarded in accordance with the American National Standards Institute guidelines for the specific machine.

4.3.2 Machine tools shall not be left running unattended.

4.3.3 Manual adjustment and gauging of work shall not be done while the machine is running.

4.3.4 Hands shall not be used for removing chips and shavings from machinery.

4.3.5 Material on a drill press shall be securely clamped.

4.3.6 Cutting tools, drills, chuck keys, wrenches, etc., should be removed from the machine after the work is completed.

4.3.7 A "pusher" stick shall be used when pushing short boards through table saws.

4.3.8 Pipe threaders shall be equipped with a momentary contact, guarded, foot switch.

4.4 Bench Grinders

4.4.1 Bench grinders, when equipped with an abrasive wheel, shall be equipped with a work rest adjusted to within 1/8" of the wheel and a tongue guard adjusted to within 1/4" of the wheel.

4.4.2 Rags shall not be used to hold objects while grinding or buffing.

4.4.3 Vice grip pliers or other suitable means shall be used to hold small objects on grinders when hands are in close proximity to the grinding wheel.

4.4.4 Only one person shall use a grinder at any one time.

4.4.5 Grinding wheels shall be inspected for cracks or other defects prior to installation and use. A ring test should be conducted.

4.4.6 "Face Shield Required", or similar wording, signs are to be posted in plain view of pedestal bench grinders and drill presses.

4.5 Portable Grinders

4.5.1 Portable grinders will be used per the manufacturers recommendations and in accordance with *Appendix A – Safe use of Portable Hand Grinders.*

4.5.3 The use of cutting wheels or disks in portable angle grinder is allowed only with an approved variance using *Appendix B – Grinder Cut-Off Wheel Variance Form*.

Approval of the request shall be obtained prior to use of the cut-off wheel.

4.5.2 PPE will include leather gloves, high impact face shield with safety glasses or goggles, hearing protection, welding jacket with sleeves or bib/apron with sleeves.

(Leather welding jacket with sleeves or leather bib/apron with sleeves when using cut-off wheels)

4.6 Hand Tools

4.6.1 The proper tool shall be used for each job.

4.6.2 Damaged tools shall be removed from service until repaired or replaced.

4.6.3 Cheaters or hammers shall not be used on adjustable wrenches.

4.6.4 Files shall be equipped with handles. Files shall not be used to pry.

4.6.5 Hand tools shall be kept in safe working condition.

4.6.6 Hand tools shall be properly stored and out of the way when not in use.

4.6.7 Un-insulated conductive tools shall not be used in or around live electrical wiring.

4.6.8 Tools with "mushroom" heads shall not be used.

4.6.9 Screwdrivers shall not be used as chisels or pry bars.

4.6.10 Valve wrenches shall not be left protruding into walkways or work areas.

4.6.11 The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool. If the wooden handle becomes cracked or damaged it must be replaced with a new handle. “Home made” handles shall not be used.

4.6.12 Knives:

a. Shall not be used as screwdrivers or pry tools.

b. Refer to the Mosaic Hand Tool/Cutting Tool Program for more details on knife use

4.6.13 Machetes shall never be swung toward your body or in the direction of any other person. When sharpening, secure machete in vise and wear cut-resistant gloves.

4.7 Power Tools

4.7.1 Portable electric tools must be grounded and inspected before use, including the power cord and plug.

4.7.2 To protect users from shock and burns, electric tools must have a 3-wire cord with a ground and be plugged into a grounded receptacle, be double insulated or be powered by a low voltage isolation transformer.

4.7.3 The grounding prong must never be removed from the plug.

4.7.4 Employees that use electric tools in construction areas or wet areas must be protected by ground-fault circuit interrupters.

4.7.5 Portable electric tools shall not be lowered, lifted or carried by their cords.

4.7.6 Never yank the cord to disconnect it from a receptacle.

4.7.7 Keep cords away from heat, oil, and sharp edges.

4.7.8 Portable grinders shall not be used without guards in place.

a. For a Safe Use of Portable Hand Grinders checklist, refer to Appendix A

4.7.9 The power cord on portable tools shall always be unplugged before changing parts.

4.7.10 Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters.

4.7.11 Face shields shall be worn when using portable grinders and cut-off saws.

4.7.12 Hand-held power tools shall be equipped with controls that require constant finger pressure to operate the tool. Positive trigger locks on hand-held power tools are not permitted and, if equipped, must be removed.

4.7.13 Remove tool from air impact wrench before bleeding down hose.

4.7.14 All fuel-powered tools shall be stopped and allowed to cool before refueling or servicing.

4.7.15 Tool safety clips or retainers shall be securely installed and maintained on pneumatic and electric impact tools.

4.8 Powder-Actuated Tools

4.8.1 Only employees who have been trained in the safe operation of the particular tool in use shall be permitted to operate a Powder-Actuated Tool.

4.8.2 A face shield shall be worn when operating a Powder-Actuated Tool.

4.8.3 The Powder-Actuated Tools shall be inspected and tested before each use prior to loading to determine that it is clean, that all moving parts operate freely and are properly lubricated, that the barrel is free from obstructions, and that the safety devices are in proper working condition.

4.8.4 All Powder-Actuated Tools shall be used with correct shield, guard, or attachment recommended by the manufacturer.

4.8.5 Any Powder-Actuated Tool that is not in proper working order or that develops a defect during use shall be immediately removed from service and not used until properly repaired in accordance with their manufacturer's specifications.

4.8.6 Powder-Actuated Tools shall not be loaded until just prior to the intended firing time.

4.8.7 Powder-Actuated Tools shall not be pointed at any employee whether loaded or unloaded.

4.8.8 Hands shall be kept clear of the open barrel end.

4.8.9 Powder-Actuated Tools shall not be used in an explosive or flammable atmosphere.

4.8.10 A Powder-Actuated Tool shall not be left unattended where it could be available to unauthorized personnel.

4.8.11 In case of a misfire, employees shall use the correct method for a specific Powder-Actuated Tool to remove the misfire.

4.8.12 Powder-Actuated Tool cabinets shall be kept free of loose loads and other debris.

4.8.13 Fasteners:

a. Fasteners used in Powder-Actuated Tools shall be only those specifically manufactured for use in such tools.

b. Fasteners shall not be driven into spalled areas, very hard or brittle materials, or easily penetrated materials.

4.8.14 Kiln-guns

a. Protective "welder's" sleeves, safety glasses, and face shields shall be worn when using the kiln guns.

b. Kiln guns shall be locked out when left unattended or not in use.

4.8.15 Training shall be provided for operators of Powder-Actuated Tools. At a minimum the training shall consist of:

a. Pre-use inspection shall be completed to determine that the Powder-Actuated Tool is clean, that all moving parts operate freely and that the barrel is free from obstructions.

b. When a tool develops a defect during use, the operator shall immediately cease to use it and shall notify his supervisor.

c. Tools shall not be loaded until just prior to the intended firing time and the tool shall not be left unattended while loaded.

d. The tool, whether loaded or empty, shall not be pointed at any person, and hands shall be kept clear of the open barrel end.

e. In case of a misfire:

i. The operator shall be shown the proper way to remove the misfire.

ii. The operator shall hold the tool in the operating position for at least 15 seconds and shall continue to hold the muzzle against the work surface during disassembly or opening of the tool and removal of the powder load.

f. Neither tools nor powder charges shall be left unattended in places where they would be available to unauthorized persons.

g. Securing the area behind the site of the application when using a Powder-Actuated Tool.

4.9 Hoists, Come-a-longs

4.9.1 Hoists and Come-a-longs shall be clearly marked to show the capacity. The capacity shall not be exceeded.

4.9.2 Straps, shackles, and the beam or overhead structure to which a Hoist or Come-a-long is secured shall be of adequate strength to support the weight of load plus gear.

4.9.3 Come-a-longs shall only be used as intended by the manufacturer, either for pulling or lifting. Come-a-longs may be used for lifting only if approved by the come-a-long manufacturer.

4.9.4 Hoists shall not be dropped or thrown.

4.9.5 Cheater bars shall not be used on ratchet handle Hoists or Come-a-longs.

4.9.6 All Hoists shall be inspected every three months (quarterly) and color coded. The color code shall not be changed until the Hoist passes the inspection. Any Hoists that do not have the proper color designation shall not be used.

4.9.7 Hoists shall be color-coded as follows to indicate the inspection period:

Quarter	Color
January - March	Yellow
April - June	Green

July September	Gray
October - December	Blue

4.9.8 Hoists shall be inspected every three months (quarterly) and color coded. The quarterly inspection shall consist of at a minimum:

a. Evidence of loose bolts, nuts, or rivets;
b. Evidence of worn, corroded, cracked or distorted parts;
c. Evidence of damage or excessive wear to hook retaining devices;
d. Evidence of damage or excessive wear to load sprockets, idler sprockets, hand chain wheel, and drums or sheaves;
e. Evidence on hand chain operated hoists of damage or wear in brake mechanism;
f. Evidence on electric or air-powered hoists of excessive wear on motor or load brake;
g. Missing or illegible labels;
h. Evidence of worn, corroded, cracked, damaged, or distorted end connections of ropes or load chains;
i. Hoist rope inspection.

4.9.9 If any serious problems exist, the inspector shall tag out the hoist and notify his supervisor immediately. The supervisor is responsible for follow-up on the recommendations.

4.10 Jacks

4.10.1 The rated load capacity shall be legible and permanently marked on all jacks and jack stands.

4.10.2 The rated load capacity of jacks shall not be exceeded.

4.10.3 Jacks shall be inspected as follows:

a. Visually before each use.
b. When used constantly or intermittently use at one locality, inspect once every 6 months;
c. When jacks sent out of shop for special work, inspect when sent out and when returned.
d. For a jack subjected to abnormal load or shock, inspect immediately before and immediately after.

4.10.4 Defective jacks shall be tagged and removed from service immediately.

4.10.5 Jacks shall be operated only by the lever furnished by the manufacturer or one of the same length.

4.10.6 Jacks shall not be raised so high that the ram, screw or ratchet runs out of the base. The operator shall watch the stop indicator, which shall be kept clean, in order to determine the limit of travel. The indicated limit shall not be overrun.

4.10.7 Jacks shall be on solid footing and be perpendicular to the load.

4.10.8 The load shall be cribbed, blocked, or otherwise secured once the lift is made.

4.10.9 When two or more jacks are being used to lift a load, special caution shall be used to prevent overloading one of the jacks.

4.10.10 The wheels of motor vehicles shall be blocked or chocked before jacking.

4.10.11 A manual operated release check valve shall be used at the rams on presses of 100 tons or more.

4.11 Air, Water, Steam and Chemical Hoses

4.11.1 Use

a. Hoses shall not be crimped to reduce or shut off pressure.
b. Hoses shall not be disconnected until the supply valve has been closed and the hose pressure bled down.
c. Hoses which cross roads or walkways shall be protected against damage by vehicles or equipment.
d. Hoses shall be stored properly when not in use.
e. Employees shall stand to one side of hose connections while applying pressure to hoses.
f. General air or water service hose shall not be used for caustic, acids or other hazardous materials
g. All steam-out nozzles, air lances, or hoses used to purge or clean equipment that has contained flammable materials shall be properly grounded.
h. Special chemical resistant hose shall be used for corrosives and organics.
i. Hydrants and stand pipes used for wash down shall be equipped with a quick shut off valve. A watchman is also required.

4.11.2 Fittings / Banding

a. Except where automatic shutoff valves are used, safety chains or other suitable locking devices shall be used at connections to machines of high-pressure hose lines of 3/4-inch inside diameter or larger, and between high-pressure hose lines of 3/4-inch inside diameter or larger, where a connection failure would create a hazard.
b. Steam hose shall be fitted with "Boss" fittings.
c. Hoses connected by "Kelly" or "Chicago connection" shall be secured with wire clips, or other suitable material.
d. "Radiator" or "Aviation" screw-type clamps shall not be used.
e. Camlock fittings shall be inspected prior to use for distortion, gaskets, functional lock down ears, etc.

4.11.3 Color Coding

a. All hose service connections shall be color coded: RED for air, BLUE for water, and BLACK for steam.
b. All hoses and fittings shall be inspected before each use for damage, wear or defects.

4.12 Power Lawnmowers

4.12.1 All positions of the operating controls must be clearly identified.

4.12.2 All power-driven chains, belts, and gears shall be so positioned or otherwise guarded to prevent the operator's accidental contact during normal starting, mounting, and operation of the machine.

4.12.3 The words “Caution. Be sure the operating control(s) is in neutral before starting the engine.” or similar wording must be clearly visible at an engine starting control point on self-propelled mowers.

4.12.4 Warning instructions on walk-behind and riding rotary lawnmowers must be affixed to the mower near the opening stating that the mower must not be used without either the catcher assembly or the guard in place.

4.12.5 The word “Caution” or stronger wording must be placed on the mower at or near each discharge opening.

5. PROGRAM REVIEW

5.1 The Hand & Portable Powered Tools Policy will be reviewed once every seven years. The review will be initiated by the EHS PMO.

6. CONTRACTORS

6.1 All contractors and temporary employees must adhere to the same Safety and Heath policies required for Mosaic employees.

7. APPENDICES

7.1 Appendix A – Safe Use of Portable Hand Grinders

7.2 Appendix B – Portable Grinder Cut Off Wheel Variance Form

8. REFERENCES

8.1 MSHA

30 CFR 56.12033, 56.13021, 56.14115, 56.14116, 56.14205

8.2 OSHA

29 CFR 1910.241, .242, .243, .244

29 CFR 1926.302

8.3 ANSI

A10.3 (1970) - Safety Requirements for Explosive Actuated Fastening Tools

B7.1, 1970 - Safety Code for the Use, Care, and Protection of Abrasive Wheels

B71.1, 1968 - Safety Specifications for Lawnmowers

B30.1, 1943, - Safety Code for Jacks

01.1-1954 (R1961) - Safety Code for Woodworking Machines

B19.1, 1938 - Compressed Air machinery and Equipment

B30.16 - Overhead Hoists (Underhung)

B30.21 - Manual Lever Operated Hoists

8.4 Public Contracts and Property Management

41 CFR 50 - 204.4, Tools and equipment

41 FR 50 - 204.8, Use of Compressed Air

8.5 NAB HS Best Practice - Metal on Metal Contact

8.6 Mosaic Hand Cutting Tool Program

9. REVISION LOG

Revision Log				
Rev. No.	Requested By	Approved By	Revised By	Rev. Date
0	Initial Issue	Safety Dept.	Task Team	Dec., 2005
1	Logo Change	Safety and Health	J. Marshall	10/25/06
2	Initial issue for Mosaic	Safety and Health	J. Alderdice	8/16/07
	Reformat for ISO		D. Allen	6/17/2011
3	Mike Neal – review for compliance		J. Marshall	1/19/2012
4		Safety Dept	J. Marshall	2/24/2012
5		Safety Director	SME	3/28/16
6		PMO	PMO	9/30/2021
No revision	Reset 7 year review cycle date	PMO	PMO	10/2/2024

Contact the Subject Matter Expert for additional information on this program.