



Material Handling & Storage Program

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1. PURPOSE

The objective of this program is to establish practices, procedures and training for materials handling and storage.

2. SCOPE

This program applies to those employees and contractors in Mosaic Fertilizer LLC Phosphates Business Unit Florida and Louisiana facilities.

3. DEFINITIONS

- 3.1 Angle of Repose - The natural angle which will be formed by the sides of an unsupported bulk storage pile.
- 3.2 Dock Boards – An engineered device that may be portable or built into a loading dock to allow access from the loading dock into a truck or trailer.
- 3.3 Guarded by Location – Moving parts so protected by their remoteness from the floor, platform, walkway, or other working level, or by their location with reference to frame, foundation, or structure as to reduce risk of accidental contact by persons or objects (see Machine Guarding Program).
- 3.4 Nip Points – A point at which a machine element meets a rotating element in such a manner that it is possible to nip, pinch, squeeze, or entrap a person or objects coming into contact with one of the two members.

4. REQUIREMENTS

4.1 General Storage

- 4.1.1 Bags, containers, bundles and boxes shall be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding and collapse.
- 4.1.2 Permanent aisles and passageways shall be appropriately marked. Additional information for marking aisles and passageways may be found in the Walking Working Surfaces Program.

- 4.1.3 Where mechanical equipment is to be used, sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways, and wherever turns or passage must be made. Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard.
- 4.1.4 Access to fire extinguishers, firefighting equipment, any other safety equipment, electrical breakers and switches, and means of egress shall not be obstructed. See Walking Working Surfaces Program for additional information.
- 4.1.5 Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control will be exercised when necessary.
- 4.1.6 Drums shall be stored with bungs or plugs in place to prevent leakage. The Mosaic Phosphates Environmental Department shall be contacted in the event of a spill or for the disposal of hazardous materials such as oil, grease, and fuel.
- 4.1.7 Drums that are used as dispensers shall be provided with a drip pan below the valve.
- 4.1.8 Materials stored on pallets shall not exceed four (4) pallets in height.
- 4.1.9 If empty pallets are to be stored inside an enclosed storage area or warehouse, they shall be stacked no more than 6 feet in height.
- 4.1.10 Forward vision shall not be obstructed when transporting material.
- 4.1.11 Maximum safe load limits of floors and structures shall be conspicuously posted in pounds per square foot in all storage areas, except for floors or slabs on grade. Maximum safe loads shall not be exceeded. See Walking Working Surfaces for additional information.
- 4.2 Manual Material Handling
 - 4.2.1 Fingers and hands shall be kept away from pinch and Nip Points.
 - 4.2.2 Proper PPE shall always be worn as appropriate for the materials being handled (see PPE Program).
 - 4.2.3 Proper lifting procedures shall be used when lifting objects. Heavy objects shall be lifted using proper mechanical equipment
 - 4.2.4 Assistance should be obtained when lifting heavy or awkward loads.
 - 4.2.5 When not in use, devices should be stored so that they do not present a tripping hazard or obstruct personnel or vehicular traffic in aisles or passageways.
 - 4.2.6 Devices should be visually inspected prior to use to be sure that they are in good operating condition. Wheels and axles should function smoothly and easily.
 - 4.2.7 The device should be operated within the load capacity. The operator should have a clear view ahead over the load.
- 4.3 Dock Boards and Wheel Chocks
 - 4.3.1 A dock board shall be used whenever a truck bed is at a different elevation than the dock. Portable dock boards shall be secured in position to prevent any movement.
 - 4.3.2 The load capacity shall be plainly marked on all dock boards.
 - 4.3.3 Wheel chocks or other mechanical devices shall be in place before entering the bed of a truck with a forklift and the vehicle shall be incapacitated by some means such as removing the airline supply from the trailer.
 - 4.3.4 Air-ride trailers should release all air from the trailer before the forklift enters the trailer.
- 4.4 Bins, Hoppers, Silos, Tanks
 - 4.4.1 Bins, hoppers, silos, and tanks where loose unconsolidated materials are stored, handled or transferred shall be:
 - a. Equipped with mechanical devices or other effective means of handling materials so that during normal operations persons are not required to enter or work where they are exposed to entrapment by the caving or sliding of materials; and

- b. Equipped with supply and discharge operating controls. The controls shall be located so that spills or overruns will not endanger persons.
 - 4.4.2 Where persons are required to move around or over any facility equipment/areas listed in this section, suitable walkways or passageways shall be provided.
 - 4.4.3 No person shall enter equipment/areas listed in this section until the supply and discharge of materials have ceased, equipment is locked out per Lockout / Tagout Program and all provisions of the Confined Space Entry Program have been followed.
- 4.5 Wet Rock Storage Areas
 - 4.5.1 Permission shall be granted from the on-duty supervision prior to walking, driving, or working on wet rock storage areas.
 - a. Chutes in the tunnel will be locked and tagged out prior to non-routine work being performed (NOTE: "pushing the pile" is considered to be routine work) above the tunnel and personnel or equipment are on the storage pile.
 - b. If travel is required on top of the storage pile, stay a minimum of 30 feet away from the trestle or stacker sides.
 - c. Do not ascend/descend steep sloping sides of the storage pile. Use the path of a storage pile tractor.
 - 4.5.2 Proper means of access onto the pile shall be provided for specific equipment not normally used on the wet rock pile.
 - 4.5.3 Persons shall not position themselves over drawholes if there is danger that broken rock or material may be withdrawn or bridged unless platforms or safety lines are used.
 - 4.5.4 Mobile or lifting equipment used on the wet rock pile shall be operated as per the Heavy Mobile Equipment and Mobile Cranes Programs.
 - 4.5.5 Tractor operators shall not dismount their tractors within 30 feet of each side of the trestle or stacker unless it is an emergency.
 - 4.5.6 Tractor operators shall remain on the tractor and radio for assistance if a tractor experiences mechanical difficulty and is unable to proceed.
- 4.6 Fertilizer Product Storage Areas
 - 4.6.1 Product storage piles shall be located so that the pile is not resting against a partition or wall of a building unless the partition or wall is designed to support the load.
 - 4.6.2 Where bulk material is stockpiled and removed by means of a front end loader (payloader), it shall be ensured that:
 - a. The working face of the material is sloped at the angle of repose; or
 - b. The vertical height of the working face of the material is not more than six (6) feet above the maximum reach of the equipment.
 - 4.6.3 Where the face of the material is undermined or undercut by means of a front end loader, or where the vertical height of the working face exceeds six (6) feet above the reach of the equipment, it shall be ensured that:
 - a. The undercut is limited to the depth of the bucket of the front end loader;
 - b. Operation of the front end loader be permitted only when the approach is parallel, plus or minus 5°, to the face of the material; or
 - c. When the undercut exceeds the depth of the bucket of the front-end loader, the working face of the material shall be pulled or knocked down by some mechanical means that can safely remove the hazard other than using a front end loader. See Product Pile Management Program for additional information.
 - 4.6.4 All persons wishing to enter bulk storage buildings shall establish contact with the payloader operator or chief operator before entering. Once confirmation is received from the payloader operator or chief operator, persons may enter cautiously, always being aware of the surroundings.

- 4.6.5 Walking and working on fertilizer product storage piles:
- a. Permission shall be granted from the duty-supervisor prior to walking up or on bulk material storage piles.
 - b. The duty supervisor responsible for the storage pile shall inspect the storage pile to determine if it is safe to walk upon. Factors such as shape, height and slope shall be considered.
 - c. No mechanical equipment shall be in use in the storage building while the storage pile is being walked upon.
 - d. All persons walking on storage piles within 25 ft. of a cliffed face greater than 5 ft. high will wear a safety harness and lifeline. Each lifeline shall be attended by a watchman located a suitable distance from the pile.
 - e. The watchman shall maintain constant visual and voice contact with the person on the pile and provide warnings of conditions as necessary.
 - f. The edges of any overhangs shall not be approached within 15 feet.
 - g. All appropriate PPE such as hard hats, safety glasses, respirators, etc. shall be worn as necessary.
 - h. Persons walking on piles shall be instructed on the hazards associated with piles, such as collapse and engulfment.

4.7 Chemical Container Storage

- 4.7.1 Storage areas shall be designated before chemicals come on site and constructed to minimize risks to employee's safety, health and the environment, as appropriate for the material. Hazardous waste shall not be stored in areas used to store chemicals.
- 4.7.2 Storage areas shall be properly labeled, managed so that the aisles are kept clear, and not used for any other purpose. Appropriate control systems such as ventilation, vapor recovery systems, and temperature controls shall be used when required or necessary.
- 4.7.3 Chemicals that are incompatible with other chemicals or materials shall be segregated by a physical structure or other device designed to manage the chemicals involved.
- 4.7.4 All storage areas shall have appropriate spill control measures and adequate containment systems in place.
- 4.7.5 Sufficient, suitable, spill control equipment shall be kept in or near storage areas.
- 4.7.6 Before constructing a new storage area or using an existing area for storage, the area shall be evaluated by EHSS staff to verify that it, and any construction plans, will comply with applicable codes and regulations.
- 4.7.7 The chemical storage area shall be examined to ensure that there is adequate fire protection. Consideration should be given to the impact of the chemical storage area on the overall facility during a major fire.
- 4.7.8 All containers shall be in good condition, free of apparent structural defects or deterioration.
- 4.7.9 Containers shall be compatible with the chemical to be stored. Chemicals shall not be stored in containers that previously held materials that may be incompatible.
- 4.7.10 All containers must be clearly labeled with the contents of the container and the hazards associated with the chemical (see HAZCOM Program).
- 4.7.11 Containers holding chemicals shall be kept closed during storage, except when it is necessary to add or remove chemicals.
- 4.7.12 Containers holding chemicals that are flammable / combustible, or reactive, must be stored at least fifty (50) feet from the facilities property line.
- 4.7.13 Containers shall be handled in a manner that will not cause leakage, spills, or damage to the container.
- 4.7.14 The storage of empty containers should be kept to a minimum.



5. TRAINING

5.1 Training on the proper handling of hazardous materials shall be provided to all employees as per the HAZCOM Program.

6. PROGRAM REVIEW AND PERIODIC INSPECTIONS

6.1 The Material Handling - Storage Procedure shall be reviewed every seven years. The Safety Department will initiate the review.

7. CONTRACTORS

7.1 Annual Site Specific training shall inform contractors of procedures, training, documentation, and inspections required by this procedure.

8. REFERENCES

8.1 MSHA Standards for Storage and Stacking of materials

8.1.1 30 CFR, 56.16001 Stacking & Storage of Materials

8.1.2 30 CFR, 56.16002 Bins, hoppers, silos, tanks, and surge piles

8.1.3 30 CFR, 56.16012 Storage of incompatible substances

8.2 OSHA

8.2.1 29 CFR 1910.176 Handling Materials - General

8.2.2 29 CFR 1917.124 Dockboards

9. REVISION LOG

Revision Log				
Rev. No.	Requested By	Approved By	Revised By	Rev. Date
0	Initial Issue	Safety Advisory Panel	Task Team	12/18/01
1	Safety Dept. - separated Conveyors and Material Handling – Storage into separate policies	R. Collins	R. Collins	8/16/03
2	Logo Change	Safety and Health	J. Marshall	10/25/06
3	Minor revisions to standardize format	D. Allen	D. Allen	5/14/07
3	Reformat for ISO		D. Allen	9/16/2011
4	Mike Neal – review for compliance		E. Nutt	12/15/2011
5	Review Cycle	Director Phosphate Safety	SME	12/7/2015
6	Review date past due	EHSS PMO	EHSS PMO	09/30/2021

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