Phosphate Program – Environmental, Health and Safety (EHS) Department

Respiratory Protection Program

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1 Introduction

1.1 Purpose

The purpose of this program is to prevent occupational respiratory illness by protecting employees from potentially harmful exposure to airborne contaminants.

This program provides guidance and information for the selection, fitting, safe use, training, and maintenance of respiratory protection equipment.

1.2 Scope

This program applies to Mosaic Phosphates Business Unit employees, contractors, and visitors who are required or voluntarily wear a respirator during normal work activities and/or emergencies.

1.3 Definitions

Key terms used in this program are defined below:

Term	Definition
Air-Purifying Respirator (APR)	A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element
Assigned Protection Factor (APF)	The workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program
Atmosphere-Supplying Respirator	Respirator that supplies the user with breathing air from a source independent of the ambient atmosphere, and includes Supplied-Air Respirators (SARs) and Self-Contained Breathing Apparatus (SCBA) units
Attendant	An individual assigned to remain outside of an Immediately Dangerous to Life and Health (IDLH) atmosphere while maintaining visual and voice contact with IDLH atmospheric entrants

Term	Definition
Canister or Cartridge	Container with a filter, sorbent, catalyst, or combination of these items, which removes specific contaminants from the air passed through the container
Emergency Escape Respirators	A NIOSH approved device intended to be used only for emergency egress
Facility Program Administrator	Site Health and Safety Professional who is assigned to direct, coordinate, and ensure compliance with the Respiratory Protection Program (RPP)
Filtering Facepiece (single-use dust mask)	A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium **Note**: Filtering facepiece is commonly called a "dust mask"
Fit Factor	A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn
Immediately Dangerous to Life and Health (IDLH)	An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere
Maximum Use Concentration (MUC)	The maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance
Physician or other Professionally Licensed Health Care Provider (PLHCP)	An individual whose legally permitted scope of practice (i.e. license, registration, or certification) allows them to independently provide, or be delegated the responsibility to provide, some or all of the health care services
Powered Air Purifying Respirator (PAPR)	An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering (shrouded hood/helmet)
Qualitative Fit Test (QLFT)	A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent

Term	Definition
Quantitative Fit Test (QNFT)	An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator
Self-Contained Breathing Apparatus (SCBA)	An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user
Supplied-Air Respirator (SAR) or airline respirator	An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user
User seal (leak) check	An action conducted by the respirator user to determine if the respirator is properly seated to the face

1.4 References

The following documents are referenced in this program:

Title
ANSI / CGA G-7.1-1989
29 CFR 1917.92 – Respiratory Protection
29 CFR 1910.134 – Personal Protective Equipment
30 CFR 56 – Safety and Health Standards-Surface Metal and Nonmetal Mines
33 CFR 127 – Waterfront Facilities Handling Liquefied Natural Gas and Liquefied Hazardous Gas

1.5 Appendices

The following are appendices of this program:

Documents ID	Document Title
Appendix A	Site Specific Respiratory Protection Information
Appendix B	Voluntary Use of Respirators
Appendix C	Respirator Selection Hazard Assessment
Appendix D	Medical Evaluation Questionnaire
Appendix E	Fit Test Procedure
Appendix F	Employee Respirator Qualitative Fit Test Record
Appendix G	Respirator Qualification Card
Appendix H	Seal (Leak) Check Procedure

Documents ID	Document Title
Appendix I	Respirator Cleaning and Maintenance Procedure
Appendix J	Respirator Inspection Procedure
Appendix K	Monthly SCBA Respirator Inspection Record
Appendix L	Monthly Escape Respirator Inspection Record
Appendix M	Respirator Program Evaluation Form
Appendix N	Respirator Use Evaluation Form

2 Responsibilities

2.1 Responsibilities

The following table contains the responsibilities for specific groups / jobs as required by this program.

Group or Title	Responsibilities
General Manager	• Ensures compliance with the Phosphate BU Respiratory Protection Program (RPP) requirements at their facility
Health and Safety Manager	• Provides subject matter expertise and oversight of the implementation of the Phosphate BU program at the facility level • Designates Facility Respiratory Program Administrators
Industrial Hygienist	• Serves as the overall RPP Administrator • Evaluates the effectiveness of the RPP annually • Communicates the criteria that determine when respiratory protection is required • Assists in selecting the type of respirator to be used for the specific types and levels of contaminants

Group or Title	Responsibilities
Facility Respiratory Program Administrator	• Administers the RPP at the facility level • Ensures respirators are NIOSH approved and appropriate for the concentrations and contaminants in the workplace • Anticipates potentially hazardous work environments, participates in exposure assessments, and specifies the appropriate level of respiratory protection
Frontline Supervisor / Area Manager	Ensures employees: • Comply with all program requirements including facial hair policy and cartridge change-out schedule • Receive appropriate training, fit testing, and annual medical evaluation • Are provided with appropriate respirators and accessories • Use respiratory protection equipment properly when required • Have a clean location for cleaning, inspecting, and storing respirator equipment • Complete qualification requirements in a timely manner (i.e. medical, training, fit-testing, etc.) • Use only manufacturer-approved parts with each unit (i.e. 3M with 3M, North with North, etc.) • Notify EHS if conditions change which could impact employee exposures or if employees are observed improperly selecting, using, inspecting, or repairing respiratory protection equipment
Physician or other Professionally Licensed Health Care Professional (PLHCP)	• Performs medical evaluations and provides clearances for specific respirator use • Completes follow up assessments as warranted • Maintains employee records as required by regulations

Group or Title	Responsibilities
Employee	• Identifies/anticipates situations which will require respiratory protection • Uses respiratory equipment only if medically qualified and trained with supervisory authorization • Ensures facial hair does not interfere with the sealing surface of the respirator's facepiece • Properly stores, cleans, and disinfects respirators after each use according to manufacturer's recommendations • Reports to Supervision any respiratory equipment malfunctions or physical/health changes that may alter their original medical evaluation and/or fit test • Informs their supervisor or the Facility Respiratory Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace

3 Training

3.1 Training – General

The Facility Respiratory Program Administrator is responsible for ensuring that respiratory protection training is provided to all exposed employees.

All exposed employees must be initially trained, in person, prior to wearing respiratory protection. As part of initial training, employees must demonstrate knowledge per the table below.

Thereafter, exposed employees will be trained annually either via CBT, ILT, or equivalent. Training will be documented by using the correct course code (documentation is automatic when conducted via CBT).

The table below defines the training topics required initially and annually:

Group or Title	Training Topics	Frequency
All Exposed	• Use	Initially and Annually
	• Hazards	
	• Limitations	
	• Care and Cleaning	
	• Storage	

3.2 Training – PAPR

All employees who use PAPRs must be initially trained, in person, prior to wearing a PAPR. As part of initial training, employees must demonstrate knowledge per the table below.

Thereafter, exposed employees will be trained annually either via CBT, ILT, or equivalent. Training will be documented by using the correct course code (documentation is automatic when conducted via CBT).

The table below defines the training topics required initially and annually for PAPRs:

Group or Title	Training Topics	Frequency
All Exposed	• Use	Initially and Annually
	• Hazards	
	• Limitations	
	• Care and Cleaning	
	• Storage	
	• Filter change schedule	
	• Battery Charging	

3.3 Retraining

Retraining will be required when any of the following situations occur:

- Inadequacies in the employee's knowledge or use of the respirator indicates the employee has not retained the required understanding or skill
- Changes in the workplace or the type of respirator renders previous training obsolete
- Any other situation in which additional / retraining appears necessary to ensure safe respirator use

Retraining is defined as receiving the initial training requirements as outlined in the table(s) above.

Retraining shall be documented using the correct course code.

4 Hazard Identification and Control

4.1 General

Site management, in conjunction with EHS and HR, shall determine the need for respiratory protection based on area/task specific monitoring, process knowledge and task hazards as well as those listed in section 4.2.

Each facility is required to document those groups they have determined need respiratory protection and are therefore covered by the RPP.

Respiratory protection shall be required when airborne contaminants are above acceptable exposure levels, or when:

- Engineering controls are pending installation or are not feasible to control a hazardous atmosphere
- Oxygen deficient conditions exist or when the atmosphere is IDLH
- Used voluntarily for comfort or personal reasons

4.2 Requirements

	Requirements
4.2.1	The Facility Respiratory Program Administrator, with assistance from the Industrial Hygienist, shall identify and evaluate all workplaces for respiratory hazards
4.2.2	The hazard assessment shall: • Include an estimate of employee potential exposure to airborne hazards • Identify each hazard's chemical state and physical form • Be based on process/task hazards and air monitoring results

	Requirements
4.2.3	Based on current process hazards and task assessments, the following areas/departments have tasks that require certain positions to be included in the RPP: • Sulfuric Acid • Phosphoric Acid • Dry Products • Ammonia Production • Maintenance and E&I • Select Material Handling • Sulfur Rail Unloading (SAR / SCBA) • Beneficiation • On Scene Incident Commanders***** • Emergency Response Team members (SAR / SCBA)***** ***** ERT members and On Scene Incident Commanders, as designated by site leadership, that are expected to wear a Self-Contained Breathing Apparatus (SCBA) or any other respirator must meet all requirements outlined in this program **Note**: *Support function employees performing a task in the identified process areas shall also follow the requirements in this program*

5 Respirator Selection and Issuance

5.1 Requirements: Common

	Requirements
5.1.1	Respiratory protection equipment shall be assigned and selected based on the workplace exposure hazard assessment as discussed in section 4.2
5.1.2	Respirators shall be selected based on hazards present
5.1.3	Only filters / cartridges matched to known atmospheric contaminants shall be used

	Requirements
5.1.4	Sufficient number of respirators (models and sizes) must be available to ensure that the respirator is acceptable and correctly fits the employee
5.1.5	Employees shall only use NIOSH certified respirators at Mosaic's Phosphates facilities
5.1.6	All employees who are required to use respiratory protection or who voluntarily request a tight-fitting respirator shall obtain a medical evaluation prior to fit-testing **Note**: Employees must receive a copy of ***Appendix B – Voluntary Use of Respirators*** (as per OSHA 1910.134 Appendix D – "(Mandatory) Information for Employees Using Respirators When not Required Under Standard")
5.1.7	All employees shall obtain a medical evaluation prior to initial use of a PAPR
5.1.8	A fit test shall be required before employees use APRs or SARs
5.1.9	Users of APRs and SARs are expected to maintain facial hair in a manner that does not interfere with the sealing surface of the respirator face-piece and their face or that interferes with the functioning of the respirator valves **Note**: Mustaches shall not extend beyond the corners of the mouth. Sideburns do not extend below the bottom of the earlobes
5.1.10	APRs and PAPRs shall not be used in an IDLH or oxygen deficient atmosphere (i.e. less than 19.5% oxygen)
5.1.11	Employees may choose to wear single-use dust masks for comfort purposes or nuisance level hazards that do not require the use of a respirator **Note**: A medical evaluation is not required for voluntary use of single use dust masks **Note**: Employees must receive filtering facepiece respirator safety training and a copy of ***Appendix B – Voluntary Use of Respirators***

5.2 Requirements: Powered Air Purifying Respirator (PAPR)

	Requirements

5.2.1	A PAPR may be used in the place of a half or full-face respirator
5.2.2	PAPR training requirements shall be completed prior to initial use
5.2.3	Only PAPR cartridges matched to known atmospheric contaminants shall be used ⚠ ***Warning:*** *Ensure the proper size PAPR battery is installed when using the multi-gas/HE cartridge.*
5.2.4	Authorization for PAPR use when not required by job/task per section 4.2 above is permitted only if all the following conditions are met: • Supervisor approval • All PAPR training requirements have been met prior to use • Appendix B, Voluntary Use of Respirators, has been covered • PPE assessment completed by the user and documented in an FLHA to determine if additional risk is being added to the job/task due to the self-upgrade to PAPR use. 🔔 **Reminder:** *PAPR face shield shall not be raised in any area where eye protection PPE is required unless secondary eye protection is worn under the PAPR headgear*

5.3 Requirements: Supplied Air Respirators (SARs)

	Requirements
5.3.1	Full face pressure demand Supplied Air Respirator (SAR) shall be worn when working in IDLH atmospheres **Note**: SARs can have either an auxiliary self-contained air supply (escape bottle) or SCBA
5.3.2	An attendant must be in place when an employee is working in an IDLH atmosphere
5.3.3	The attendant must remain outside the IDLH atmosphere
5.3.4	The attendant must have either a pressure demand SCBA, positive pressure SCBA or a pressure demand/positive pressure SAR with auxiliary SCBA
5.3.5	The attendant must be knowledgeable on how to initiate an emergency response event
5.3.6	The attendant must be equipped with appropriate retrieval equipment
5.3.7	The employee entering the IDLH atmosphere, and the attendant, must maintain visual and/or voice / signal contact at all times

5.4 Requirements-Emergency Escape Respirators

	Requirements
5.4.1	NIOSH approved emergency escape supplied air respirators will be provided in process areas where hazardous chemicals may be released (Sulfuric, Ammonia and Dry Products) based on the facility and process area assessment **Work Area Assignment** • Sulfuric Acid Plants ○ Escape supplied air devices shall be staged in strategic locations in each facility ○ Mouthpiece escape respirators (used with unvented goggles) equipped with $S0_2$ filters shall be on each person or within arm's reach while working above ground level or areas with restricted access/egress • Granulation and Ammonia Production Plants/Storage Areas ○ Escape supplied air devices shall be staged in strategic locations in each facility ○ Mouthpiece escape respirators (used with unvented goggles) equipped with NH_3 filters shall be on each person or within arm's reach while inside the operating area boundaries when the plant(s) are operating **Note**: Emergency escape respirators may be staged in locations outside of the process areas list above based on hazard assessment **Note**: Alternative NIOSH approved escape respiratory devices (full face APRs, Drager hoods, etc.) may be utilized for emergency escape with approval from the EHS department
5.4.2	Emergency escape respirators shall be easily accessible and stored in sufficient quantity in work areas. The number of respirators provided in an area will be estimated based on average number of employees that could be present during routine/normal operations
5.4.3	Emergency escape respirators shall be stored in compartments or covers that are clearly marked
5.4.4	A list of emergency escape respirator locations and inspection schedules shall be maintained by the Facility Respiratory Program Administrator

	Requirements
5.4.5	Emergency escape respirators shall be inspected monthly
5.4.6	Emergency escape respirators shall be replaced after use

6 Medical Evaluation

6.1 Requirement Below are the requirements for medical evaluations:

	Requirements
6.1.1	All medical examinations and questionnaires shall remain confidential between the employee and the PLHCP
6.1.2	Employees required to use respiratory protection shall receive a medical evaluation to determine if there is a physical or medical condition that would restrict the use of respiratory protection
6.1.3	Medical evaluation will be conducted by Mosaic's physician or other PLHCP
6.1.4	All respirator users must complete a Respirator Medical Evaluation and questionnaire annually (refer to ***Appendix D – Medical Evaluation Questionnaire***)
6.1.5	Before the medical evaluation, the Facility Respiratory Program Administrator shall provide Mosaic's PLHCP with the following information: • Type and weight of respirator each employee will use; • Duration and frequency of use; • Expected physical work effort; • Any other protective equipment and clothing needed; and • Temperature and humidity extremes at the job site
6.1.6	During the examination, the employee shall be given an opportunity to discuss the questionnaire and examination results with the company PLHCP

	Requirements
6.1.7	Upon completion of the medical evaluation, Mosaic's PLHCP shall provide the Facility Respiratory Program Administrator with the following information: • Any limitations on respirator use related to the medical condition of the employee or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator; • The need for any follow-up medical evaluations; and • A statement that Mosaic's PLHCP has provided the employee with a copy of their written recommendation
6.1.8	Additional medical evaluations are provided / may be conducted if: • An employee reports medical signs or symptoms that are related to their ability to use a respirator; • The PLHCP, supervisor, or the Facility Respiratory Program Administrator informs Mosaic an employee needs to be reevaluated; • Information from the RPP, including observations made during fit testing and program evaluation, indicates a need for employee re-evaluation; or • A change occurs in workplace conditions (e.g. physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee
6.1.9	Records of medical evaluations shall be maintained by the PLHCP for a period of time in accordance with ***Mosaic USA Record Retentions Schedule***
6.1.10	Records shall be available for review as needed for regulatory inspections

7 Fit Testing

7.1 Requirements Below are the requirements for fit testing:

	Requirements
7.1.1	Any employee required to use a tight-fitting face piece respirator shall pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) prior to use and annually, thereafter
7.1.2	Employee fit tests shall be performed only after a medical examination has been certified
7.1.3	QLFT and QNFT fit tests shall be administered utilizing OSHA protocol
7.1.4	QLFT may only be used to fit test negative pressure air-purifying respirators that achieve a fit factor of 100 or less
7.1.5	QLFT shall be performed using procedures outlined in ***Appendix E – Fit Test Procedure***
7.1.6	QNFT may be used for any tight-fitting respirator
7.1.7	QNFT of full facepiece respirators shall meet or exceed a fit factor of 500, while quarter and half mask respirators shall meet or exceed a fit factor of 100
7.1.8	Fit test shall be administered using an employee's assigned respirator or the exact same make, model, style, and size that will be used
7.1.9	Records of fit testing shall contain the following: • The name or badge number of the employee tested; • Type of fit test performed; • Specific make, model, style, and size of respirator tested; • Date of test; and • The pass/fail results for QLFTs or fit factor test results for QNFTs Fit tests shall be documented using ***Appendix F – Employee Respirator Qualitative Fit Test Record*** and a fit test qualification card (***Appendix G – Respirator Qualification Card****)* shall be issued to the employee

8 Respirator Use

8.1 Requirements Below table outlines requirements for respirator use:

	Requirements
8.1.1	Respiratory protection shall be used in accordance with manufacturer's instructions, federal regulations, and Mosaic's RPP
8.1.2	Facial hair or any condition that could interfere with the face-to-facepiece seal or valve function of a respirator is prohibited
8.1.3	The respirator user shall perform a user seal check (negative/positive pressure check) when donning a tight-fitting APR respirator
8.1.4	Tight-fitting APR respirators shall not be worn with any other personal protective equipment that may interfere with the seal (e.g. safety glasses, corrective lens frames, etc.)
8.1.5	All filters, cartridges, and canisters shall be labeled and color coded with the NIOSH approval label
8.1.6	The label must not be removed and remain legible
8.1.7	High Efficiency Particulate Air (HEPA) filters shall be used when particulate contaminants are the only constituent of concern
8.1.8	Multi chemical (gas/vapor) cartridges shall be used for organic vapors, sulfur dioxide, hydrogen chloride, chlorine, hydrogen fluoride, hydrogen sulfide, and ammonia
8.1.9	Defective filters, canisters, and cartridges shall not be used and shall be removed from service
8.1.10	The respirator user shall ensure cartridge filters are marked with the date they are placed in service and replaced: • At a maximum of 30 days from the service date; • If vapor or gas breakthrough is noticed; or • Changes in breathing resistance is encountered
8.1.11	The respirator selection hazard assessment shall identify the correct filter, cartridge, or canister to be utilized with the assigned APR for the specific job task

9 Respirator Care / Maintenance / Storage

9.1 General After use, the respirator shall be washed, disinfected, and inspected according to the manufacturer's instructions

9.2 Inspection

Type of Respirator	Inspection Intervals
Respirators used for routine work	Inspect before each use and after cleaning
Respirators used for emergency	Inspect at least monthly, complete a function check before and after use
Respirators used for escape only	Inspect before use

9.3 Care

	Requirements
9.3.1	Respirators shall be stored in a plastic bag and placed in a designated storage location away from dust, sunlight, extreme heat or cold, excessive moisture, or damaging chemicals
9.3.2	Respirators shall be packed or stored in a manner where it is protected from physical damage and to prevent deformation of the facepiece and exhalation valves

10 Inspection / Audit / Evaluation

10.1 Requirements Inspections, audits, and evaluation requirements are outlined below:

	Requirements
10.1.1	The Industrial Hygienist shall evaluate the effectiveness of the respiratory protection program at each facility annually
10.1.2	The program evaluation shall address wearer acceptance on factors such as comfort, fit, selection, proper use, maintenance, adequate visibility, and the protection afforded
10.1.3	The Facility Respiratory Program Administrator shall conduct periodic workplace observations to confirm RPP adherence
10.1.4	Supervisors shall audit respirator use in the workplace on a continuous basis by using ***Appendix N – Respirator Use Evaluation Form***

11 Revision Log / History

Rev. No.	Rev. Date	Revised By	Reason for Revision
0	12/16/1999	SAP	Initial issue
1	06/19/2003	Corporate EHS	Yearly review
2	11/21/2006	EHS	Logo change
3	06/01/2007	Corporate EHS	Initial issue for Mosaic
4	08/09/2011	EHS	Reformat for ISO
5	04/26/2012	EHS	Yearly review
6	05/24/2012	EHS	Change requests
7	10/31/2019	EHS	Yearly review
8	03/06/2020	E Iocco (EHS PMO)	Clarification for ERT members
9	09/01/20211	EHSS PMO	Yearly review
10	08/11/2022	EHSS PMO	Yearly Review
11	05/15/2023	EHSS PMO	PAPR Changes
NA	5/30/2024	EHS PMO	Yearly Review – no changes