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Document Revision Change Table

Revision Number	Revision Description	Revised By	Revision Date
Rev. 03	*Considered as starting document for revision change table*		
Rev. 04	Procedural changes for this revision are indicated by red text	S.Simoneaux	5/09/08
Rev. 05	Changes in red reflect corporate mandated requirements	S.Simoneaux	11/04/08
Rev. 06	Changed boot allowance	A.Hodgkinson	1/11/2010
Rev. 07	Removed Fall protection section due to roll out of New site standard. Include requirement for reusable StaySafe suits Removed Hagemeyer as the RX glasses vendor	S.Simoneaux	6/15/2012
Rev. 08	Removed 4.9.4 D. Goggles must be in the possession of all Beaumont Site Employees at all times.	G. Dawson	3/5/2014
Rev. 09	Updated amount of allowed steel-toe shoe allowance	G. Dawson	2/22/2016
Rev. 10	Updated Safety Shoe Vendor Option (Safety Wear, Ltd.), also added that employees/contractors working in same work crew in close proximity (within 10 feet) of hazardous work, must wear the same PPE to ensure that hazards are mitigated.	G. Dawson	6/13/2016
Rev. 10	Reviewed procedure and made minor change to not require annual noise monitoring for employees whose monitoring results indicate that noise levels are at or above the 8 or 12 hour TWA. The areas in question are now in the site Hearing Conservation Program and do not require annual noise monitoring.	G. Dawson	9/20/2018
Rev. 11	Update to procedure to require Leather protectors to be worn over rubber insulating gloves to provide protection against cuts, punctures and abrasions except under limited-use conditions when small equipment and parts manipulation necessitate high finger dexterity.	G. Dawson	5/28/2019
Rev. 12	Added new information pertaining to the New Corporate Electrical Safe Work Program as well as added new information from New Corporate PPE Procedure. Changes are to sections 4.5, 4.8, 4.9, 4.11, 4.14 and 4.15	G. Dawson	10/28/2019
Review	Reviewed – No changes	G. Dawson	11/19/2020
Rev. 13	Updated procedure to reference area vending machines	G. Dawson	03/31/2021
Rev.14	Updated PPE Specifics 4.6	G. Dawson	02/10/2022
Rev. 15	Updated composite material as acceptable for safety boots	G. Dawson	10/25/2022
Rev. 16	Update Boot Allowance	C. Wilding	01/31/2023
Rev. 16	Reviewed – No Changes	G. Dawson	01/22/2024
Rev. 16	Reviewed – No Changes	G. Dawson	12/16/2024

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1 Reference to Superior Document

North American Implementation Document **N-ID-OSA 007 Personal Protective Equipment** and North American requirement document **N-R-OSA 001: *Occupational Safety***, Section 1.7.8: *Personal Protective Equipment (PPE)*

2 Purpose

The purpose of this document is to establish minimum standardized requirements for a Personal Protective Equipment (PPE) program. This procedure applies to all Beaumont site employees, contract employees, contractors and visitors who utilize any type of personal protective equipment. This procedure addresses program elements for:

- *workplace PPE hazard assessment*
- *PPE selection, fit, use, cleaning, inspection, maintenance, and storage*
- *employee training and communication of requirements*
- *medical clearance (for respirator use only)*

3 Definitions

ARC Flash Hazard

A dangerous condition associated with the possible release of energy caused by an electric arc

An arc flash hazard may exist when energized electrical conductors or circuit parts are exposed or when they are within equipment in guarded or enclosed condition, provided a person is interacting with the equipment in such a manner that could cause an electric arc. See Appendix B: *Tasks with Arc Flash Hazard Potential* for examples of activities that could pose an arc flash hazard. **NOTE:** Under normal operating conditions, enclosed energized equipment that has been properly installed and maintained is not likely to pose an arc flash hazard.

Arc Flash Risk Assessment

A study investigating a worker's potential exposure to incident energy, conducted to determine the arc flash protection boundary and the appropriate protective clothing and equipment

BASF technical guideline **N-P-EI-915** outlines methods, assumptions, and deliverables

Arc-Rated or **Arc Rating**

The value attributed to materials that describes their performance when exposed to an electrical arc discharge

The arc rating is expressed in cal/cm^2 or J/cm^2 and is derived from the determined value of the arc thermal performance value (ATPV) or energy of break open threshold (E_{BT}), should the material system exhibits a breakopen response below the ATPV value. Arc rating is reported as either ATPV or E_{BT}, whichever is the lower value. **NOTE:** Arc-rated clothing or equipment indicates that it has been tested for exposure to an electric arc. Flame-resistant (FR) clothing without an arc rating has not been tested for exposure to an electric arc. All arc-rated clothing is also flame- resistant (FR). ATPV, E_{BT}, and breakopen response are defined in ASTM F1959/F1959M: *Standard Test Method for Determining the Arc Rating of Materials for Clothing*.

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3 Definitions continued

Boundary, Arc Flash Protection

When an arc flash hazard exists, this is an approach limit at a distance from a prospective arc source within which a person could receive a second degree burn if an electrical arc flash were to occur. Informational Note: A second-degree burn is possible by an exposure of unprotected skin to an electric arc flash above the incident energy level of 1.2 cal/cm^2 (5 J/cm^2).

Boundary, Limited Approach

This is a distance from exposed energized electrical conductors or circuit parts within which a shock hazard exists. See Appendix A: *Approach Boundaries for Shock Protection*.

Boundary, Restricted Approach

This is a distance from an exposed energized electrical conductor or circuit part within which there is an increased risk of shock from electrical arc-over combined with inadvertent movement for personnel working near the energized electrical conductor or circuit part. See Appendix A: *Approach Boundaries for Shock Protection*.

Degradation

The destructive effect a chemical may have on a piece of chemical protective clothing. Effects on clothing may include dissolving, softening, hardening, or complete destruction.

Flame-Resistant (FR)

A term used to describe material that burns slowly or is self-extinguishing after removal of an external source of ignition, meeting the requirements in NFPA 2112 and ASTM F2733

Incident Energy

the amount of energy impressed upon a surface, a certain distance from the source, generated during an electrical arc event

Incident energy is expressed in calories or joules per centimeter squared (cal/cm^2 or J/cm^2)

Penetration

The passage of a chemical through an opening in a protective material. Examples include holes, rips, space between zipper teeth, and open cuffs.

Permeation

The passage of a chemical through a piece of chemical protective clothing on a molecular level. If a piece of clothing is permeated, the chemical may collect on the inside, increasing the chance of skin contact.

Personal Protective Equipment (PPE)

equipment worn to protect the eyes, face, head, hearing, lungs, body, and extremities from injury or illness resulting from chemical exposure and physical hazards

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3 Definitions continued

PPE program administrator
The administrator shall be qualified by appropriate training and/or experience that is commensurate with the complexity of the program elements they will oversee, ability to administer the PPE activities, and ability to conduct the required evaluations of program effectiveness.

4 Procedure

4.1. General Requirements

- Site/unit management shall minimize employee exposure to workplace hazards by employing effective engineering and/or administrative controls, where feasible. When hazards cannot be effectively controlled by these means, or during control implementation, PPE may be used to provide employees protection from workplace hazards. PPE will also be appropriately provided during permit program activities; e.g., line breaking or confined space entry, and during emergency response activities.
- BASF will provide required PPE for use by employees. BASF employees working at remote locations shall only use PPE approved by their respective PPE administrator. Vendors and visitors will be provided PPE upon entry into the site that is appropriate for the environment they are expected to encounter. Temporary or contract employees will be provided required PPE by BASF. Contractor management is responsible for providing the necessary PPE for use by their employees, as well as medical monitoring and fit testing (where required) and training.
- A PPE program administrator shall be designated for each site/unit to administer the PPE program.

4.2. PPE Hazard Assessment

A PPE hazard assessment was performed for all of the work areas on the Beaumont site to determine the proper selection of PPE for tasks being performed and/or chemicals being used. This hazard assessment is updated whenever changes are made to the process, new chemicals are introduced, PPE is found to be deficient for the task, or current hazards change. The written certification for this PPE hazard assessment and the PPE charts for each work area are separate documents. The change management and project review processes provide opportunities to capture such changes in the workplace.

4.3. Program Review

The PPE Program is reviewed annually to ensure that it is current and that it reflects existing workplace conditions.

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4.4. Provisions for PPE

- BASF Beaumont will provide its employees with the appropriate PPE for the different work areas. All PPE except prescription safety glasses and leather steel/composite-toed shoes may be obtained from either area vending machines or the Vallen/BASF Technical Services Building located on the west side of the fire house.
- BASF will also furnish PPE for vendors and visitors to use on site.
- BASF will provide contract employees appropriate PPE with the exception of prescription safety glasses and leather steel/composite-toed shoes.
- Contractors are responsible for supplying all necessary PPE for their employees.

4.5. General Use and Inspection

4.5.1 Pre-Use Inspection

Inspect each item of equipment or clothing prior to use and immediately following any incident that can be reasonably expected to cause damage for defects such as missing or defective parts, imperfect seams, soil, tears, scratches, stiffness, distortion, discoloration, cracks, pinholes, etc. Immediately repair (where appropriate), send for repairs to comply with the original manufacturer's specifications, or discard PPE that does not pass inspection. If you encounter defective PPE, immediately report this to supervision.

4.5.2 Care of Equipment

4.5.2.1 Maintain protective equipment in a safe, reliable, and clean condition and in accordance with manufacturer's instructions.

4.5.2.2 Store protective equipment in a manner that will prevent damage.

4.5.3 Donning/Doffing/Field Use

- *Always follow the manufacturer's instructions for donning PPE to ensure proper fit. While performing a work task, the user shall periodically inspect PPE to check for tears, punctures, discoloration, stiffness, and weakening of material during use.*
- *The site/unit must address potential heat stress problems created by wearing protective garments, e.g., full-body encapsulating chemical protective suits and arc-rated flash suits.*
- *Do not wear protective clothing and equipment that may contain residual contamination into offices, control rooms, lunchrooms, clean change rooms, etc., where the contamination can spread, exposing non-protected personnel. In addition, to prevent exposure to personnel wearing PPE,*
- *decontamination, removal, and disposal procedures must be developed as appropriate.*

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4.6. Minimum Requirements for Process Areas, Tank Farms and Laboratories.

4.6.1 Hard Hats, steel/composite-toe boots, safety glasses (with side shields), long Sleeved shirts, and ear plugs are required by all personnel entering process areas, tank farms, Flaker building and wastewater treatment areas of the site.

4.6.2 Long sleeves and safety glasses are minimal requirements for onsite laboratories.

4.6.3 Long sleeves, safety glasses and steel/composite-toe boots are minimal requirements for Packout Warehouse and Maintenance/I&E shops.

Note: PPE is not required in defined non-PPE areas unless certain job tasks require PPE or hazardous conditions exist.

4.6.4 Visitors, vendors, etc., who spend very limited time in areas where foot protection is required do not have to wear steel-toed shoes. An example of this activity would be a plant tour. Beyond the administration building, open-toed shoes and sandals are prohibited.

4.6.5 It is a recommendation that hard hats and safety glasses be worn when walking or riding bicycles on approved plant roadways outside of process battery limits.

4.6.6 Employees/Contractors working in the same work crew, who are in close proximity (within 10 feet) of hazardous work, must wear the same PPE to ensure that hazards are mitigated.

4.7 PPE Exemptions

- PPE is not required in office buildings, control rooms, offsite areas, and parking lots unless a specific task mandates its use.
- Individuals are not required to carry and/or wear PPE when reporting to work and when departing at the end of the work shift as long as paved roads or sidewalks are used. Under no circumstances should employees walk through process areas without the appropriate PPE.

4.8 Training

4.8.1 Initial Training

General Training Requirements

Employees must receive training before assignment of work involving use of PPE. PPE training must include instruction on the following:

- when PPE is necessary
- what PPE is necessary
- how to properly don, doff, adjust, wear, and inspect PPE
- function and limitations of the PPE including conditions that affect PPE effectiveness
- procedures for proper selection, proper care, maintenance, useful life, disposal, and decontamination (where applicable)
- the site/unit policy on the uses of contact lenses.

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4.8.2 *Retraining*

Employee retraining on the PPE program will be completed whenever an employee demonstrates that they do not have the proper understanding and/or necessary skills. In addition, retraining will also be done whenever changes in the hazards of the workplace occur or the types of PPE used are changed.

4.8.3 Training Documentation

Each employee must demonstrate an understanding of the required training before being allowed to perform any work that requires the use of PPE. The verification may include demonstration of competency or a written evaluation. A written certification stating that the affected employee has received and understood the training must include the name of employee receiving training, the date(s) of training, subject matter, and name of instructor.

4.8.4 Voluntary Use of PPE

If personnel choose to use PPE for a task that does not require its use, the user must be fully trained on the proper use of the PPE provided to them and the limitations of the respective PPE.

*For voluntary use of respiratory protection, the employee must be provided a copy **of OSHA's Respiratory Protection Standard .** Voluntary use of respirators other than non-mandatory dust masks requires that the employee meets all medical clearance and training requirements.*

4.9 Eye and Face Protection

4.9.1 General Requirements and Safety Glasses

- One must wear appropriate eye and face protection if the potential for eye and/or facial injury exists from flying particles or wind-blown objects, molten materials, liquid chemicals, acid/caustic or other corrosive liquids, chemical gases or vapors, light radiation, or electrical hazards.

- *Safety glasses with side shields will be the minimum eye protection to wear in areas where the potential for eye injury exists. Safety glasses with side shields must meet the specification of the current version of **US/ANSIZ87.1**.*

- *Safety glasses with side shields are required in the following areas.*

  1. *Within the battery limits of all production units and tank farms, including water treatment areas.*
  2. *Warehouses*
  3. *In all maintenance and I/E shops*
  4. *In all laboratories with the exception of designated computer workstation areas.*

- *Inspection/Maintenance*
  1. *Safety glasses should be replaced when vision is impaired due to scratches or cloudiness of the lenses. They must be inspected prior to use for lens defects and loose temples. The should fit snugly around the ears in such a manner that they will not fall off when the head is tilted forward.*
  2. *Safety glasses should be cleaned regularly with lens cleaning solution to ensure that vision is not impaired.*

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4.9 Eye and Face Protection continued

4.9.1 General Requirements and Safety Glasses continued

- Limitations
  Safety glasses provide minimum protection to prevent eye injuries. The do not offer sufficient splash protection against chemicals nor do they offer protection against injurious light.
- Tinted Lenses
  Tinted lenses shall not be worn at night or inside buildings.

4.9.2 Contact Lenses

Personnel are permitted to wear contact lenses in locations where hazardous chemicals or materials are handled. **Please refer to Contact Lens Usage Procedure BMEHS-002.004**.

4.9.3 Prescription Safety Glasses

A. Provisions

- BASF will provide site employees who routinely work in areas where safety glasses are required (i.e., perform tasks in such designated areas at least once a week) with one pair of prescription safety glasses with side shields per year. Styles are pre-selected by BASF. Tinted lenses are not to exceed a 1.7 shade. The cost of the eye exam is not the responsibility of the company.
  - BASF will also pay for one pair of lenses for a full-face respirator prescription eyeglass kit.

B. Steps to Obtain Prescription Safety Glasses

An employee may obtain prescription safety glasses as follows:

- Take a copy of prescription, which must be less than two years old, to the contracted vendor eyeglass technician
- The eyeglass technician is scheduled to be at the site once a month. Please contact the safety department for times

C. Replacement Side Shields

Replacement side shields for prescription eyewear may be obtained from the plant nurse.

4.9.4 Goggles/Face Shields/Protective Hoods

A. Specifications

Goggles and face shields provide protection for chemical splash or other flying objects. Chemical goggles that meet ANSI Z87.1 impact resistance does not have to be worn in conjunction with safety glasses. Goggles or safety glasses with side shields must be worn with a face shield.

See Unit PPE Matrix for specific task requirements for wearing goggles and face shields.

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4.9 Eye and Face Protection continued

4.9.4 General Requirements and Safety Glasses continued

B. Inspection
Goggles and face shields should be inspected prior to use for cracks, scratches, and pits.

C. Tasks Requiring Face Shields
The following are tasks which require face shields:

- All line breaking activities (unless full face respirator is used)
- Grinding
- Taking samples
- Connecting and disconnecting chemical hoses or lines
- Working around high voltage

D. Use
When chemical goggles are in use for eye protection, the headband of the goggles must be placed directly on the head and not retained on a hard hat or other retention device, unless the device to which they are attached is secured to the head.

E. Electrical Face Shield/Hood
Personnel must wear an arc-rated face shield or arc-rated flash suit hood for selected electrical tasks. Employees shall always wear safety glasses or goggles meeting requirements for impact protection required by the current version of US/ANSIZ87.1 under the arc-rated face shield or hood. The primary use for these face shields and hoods is to provide protection from thermal energy.

4.9.5 Welding Protection

A. Welding Operations – Light Radiation – Eye Protection
Personnel engaged in welding-type operations where light radiation may cause injury to the eyes must use eye protection with lenses that have the appropriate shade number for the work being performed (See Appendix G – Filter Lenses for Protection Against Radiant Energy. This also applies to adjacent personnel such as helpers. Refer to the table in 29 CFR1910.133(a)(5).

B. Welding Operations – Light Radiation – Face
Personnel performing welding-type operations must wear a welding helmet to shield the face from light radiation and impact. If the welding helmet does not meet impact requirements, personnel must wear safety glasses or goggles that do meet impact requirements under the helmet.

4.10 Respiratory Protection

Please refer to the Beaumont site's written respiratory protection program **BMEHS-002.032**. It applies to BASF employees and contract employees. Contractors are responsible for providing their own medical evaluations, fit-testing, training, and equipment.

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4.11 Head Protection

- Personnel shall wear hardhats in areas, based upon the hazard assessment, when reasonable potential for injury to the head exists from impact, falling objects, or electrical shock.

A. Specifications

Hard hats must meet ANSI Z89.1 Current Version. In addition to impact and penetration resistance, the Class E hard hats supplied to site personnel also provide protection from electric shock and burn. Hard hats constructed of aluminum alloy are not permitted.

B. Requirements

Hard hats must be worn when entering the battery limits of all production units, including process areas, tank farms, and wastewater treatment areas.

C. Inspection/Maintenance

Hard hats should be inspected prior to use for cracks, discoloration, or any other deficiencies that may compromise the integrity of the shell, i.e., chemicals, sunlight or heat exposure. The hard hat liner should also be inspected for cleanliness and wear.

D. Use

- The hard hat should be adjusted so that it fits snugly on the head. It should be worn with the brim forward unless other safety equipment necessary for the job requires otherwise, i.e., a welding helmet.
- No object should be placed between the hard hat suspension and the shell. Only sweatbands, bandanas worn tightly around the skull, and winter liners are allowed between the suspension and head.

E. Hard Hat Exemptions

Hard hat exceptions include the following areas, unless work is going on in these areas that would specifically require head protection:

- Operating a vehicle or piece of equipment which has an enclosed cab or which has adequate head protection. This includes fork lifts, backhoes, cranes, and electrical carts
- The maintenance complexes
- All laboratories
- Dicamba packaging warehouse
- Maintenance receiving warehouse
- Administration Areas
- Parking lots and roadways

4.12 Foot Protection

A. General Footwear

Site employees and contract employees who utilize plant roadways or sidewalks ONLY to reach one of the following destinations inside the manufacturing complex are not required to wear steel/composite-toed shoes. Steel/composite-toed exemption areas include:

4 PROCEDURE continued

4.12 Foot Protection continued

A. General Footwear continued

- Office Areas
- Control rooms
- Lunch room or Conference rooms
- QC laboratory
- Main lab area in the process improvement laboratory
- Offsite areas

ISandals, and open toed shoes are prohibited beyond the administration building.

B. **Visitors, vendors, etc**., who spend very limited time in areas where foot protection is required do not have to wear steel/composite-toed shoes. An example of this activity would be plant tour. However, beyond the administration building, open-toed shoes and sandals are prohibited.

C. **Contractors**
Contractors who enter process areas and Tank Farms or perform work activities will be evaluated based on the nature of their work as defined in the pre-job evaluation and contract-bidding process. Contractors must wear appropriate leather work shoes as minimum foot protection. Steel/composite- toed safety footwear is required in all process, tank farm and construction areas.

4.12.1 ***Leather Steel/Composite-Toed Shoes***

A. Specifications
All protective footwear must meet or exceed ANSI Z41-Current specifications. This is to provide protection against falling or rolling objects. Safety will approve shoe styles. Approved styles must have leather uppers, chemical resistant soles, and **a ¼ inch** defined heel.

B. Requirements
All BASF Beaumont personnel and contract employees must wear leather steel/composite-toed shoes at a minimum when entering the following areas:

- Within the battery limits of all production units, including process areas, tank farms, and waste water treatment areas
- Dicamba packaging warehouse
- Maintenance receiving warehouse
- In all maintenance and I/E shops
- In the kilo lab and distillation section of the process improvement laboratory

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4 PROCEDURE continued

4.12 Foot Protection continued

4.12.1 Leather Steel/Composite-Toed Shoes continued

B. Requirements continued

Specific tasks may also require the use of steel/composite-toed shoes by an employee who works in an area that does not normally require foot protection. Examples include:

- Handling cylinders or chemical containers greater than one gallon
- Moving 55 gallon drums

C. Shoe Allowance

BASF will provide a $175.00 shoe allowance for the purchase of steel/composite-toed shoes to employees who routinely (i.e., at least once a week) work in areas or perform specific tasks where steel-toed shoes are required.

D. Shoe Vendor

Shoes can be obtained from Safety Wear, Ltd.

E. Inspection/Maintenance

- Footwear shall be inspected before use for holes, rips, tears, contamination, and excessive wear.
- Dirty or contaminated footwear should be washed before entering control rooms or offices.

F. Chemical Protective Footwear

Specific job tasks require steel/composite-toed neoprene boots or leather boots/shoes with neoprene booties (slip-ons). Such tasks include:

- Line breaking
- Taking samples
- Connecting and disconnecting chemical hoses or lines
- Washing down process areas or cleaning chemical spills

4.13 Hand Protection

A. Selection

Glove selection is based on the type of hand protection required (physical versus chemical hazard), durability, dexterity requirements, and chemical permeation. Refer to the PPE charts (part of the hazard assessment) for chemical specific job tasks. Gloves can be obtained from the onsite Vallen Safety Supply Store.

B. Latex Gloves

Latex gloves shall not be used, except where there is no other material of construction that is suitable to protect against the hazard. To prevent skin, contact with latex, use double-glove techniques where possible.

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4.13 Hand Protection continued

C. Inspection/Decontamination

- Gloves should be inspected prior to each use for holes, wear, tears, cracks, discoloration, or any other weakened feature that may lessen the ability of that glove to provide protection.
- Re-useable chemical gloves should be decontaminated with copious amounts of soap and water prior to removing. If the gloves cannot be adequately decontaminated or appear defective, they shall be discarded and replaced.

D. Storage

- Cleaned gloves should be dried off and placed in areas where they will remain clean and unexposed to chemical and physical agents.
- Gloves are to be removed before opening doors to buildings. Used gloves shall be kept out of unit control rooms and lunchrooms. Boxes are available outside of site control rooms for storage of used gloves.

Not all cut-resistant glove testing and rating systems are identical. Two primary sources for this testing are ANSI-ISEA 105 (North America) and EN 388 (Europe and many other countries). While the numerical rating ranges are similar, the test methods are not identical.

This may create confusion and cause personnel to be provided less than adequate cut-resistant gloves. Therefore, the recommendation is that all BASF NA sites focus on the new *ANSI-ISEA 105-2016,* nine-point (A1 – A9), cut-resistant rating system when determining appropriate cut-resistant glove selection.

4.14 Chemical Protective Clothing

A. Selection

The type of protective clothing needed for a particular operation is based on the hazard assessment. Refer to the PPE charts (part of the hazard assessment) for routine and non-routine activities performed in the different operating units, laboratories, and other work areas on the Beaumont site that require protective clothing. The various types of protective clothing are available at the onsite Vallen Safety Supply Store.

B. Inspection

- Level A encapsulating suits must be inspected upon receipt, including an inflation test, and as a minimum annually thereafter. If used in a response and not disposed of, inspect after each use.
- One must inspect the exhaust valve diaphragm on Level A suits after each use or once per year as a minimum. Replace the exhaust valve diaphragm no longer than every two (2) years from date of manufacture.

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4.14 Chemical Protective Clothing continued

B. Inspection continued

- Inspect all other chemical protective garments prior to use. If used in a response and not disposed of, inspect after each use and annually thereafter.
- Maintain documentation, as applicable, on all Level A suits including inspections, pressure tests, diaphragm inspection, and diaphragm replacement using a unique identifier for each suit.
- Maintain all chemical protective garments intended for use during emergency response incidents in a ready-to-use status and marked and designated for emergency use only.
- Store clothing properly to prevent damage or malfunction from exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, insects, sharp edges, and impact.

C. Use

- Once protective clothing is donned, ensure that all zippers, snaps, flaps, or other fasteners are secured.
- Cuff and tape the legs of suits over boots so that chemicals cannot run into the boots.
- When donning gloves, tape the glove/suit interface with duct tape to ensure sealing.
- Any contaminated PPE should be decontaminated prior to doffing. Care should be taken to avoid contact with the external portion of any chemical protective clothing, even if decontamination has occurred.
- Contaminated PPE should be disposed of properly.

D. Disposing of Protective Clothing

- After chemical clothing is removed, inspect for chemical degradation. If the suit appears compromised, soiled or has any chemical odor which cannot be removed by further scrubbing and rinsing, the PPE must be properly disposed of.
- Any personnel clothing or uniforms that become contaminated shall be removed and placed in a plastic bag and delivered to the onsite Vallen technician along with a SDS of the contaminant. The clothing will then be sent out to an industrial cleaning company and will be returned to the individual once the items have been cleaned.

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4.15 Protective Clothing and Equipment for Electrical Tasks

Informational Note: These PPE requirements are intended to protect a person from arc flash and shock hazards. While some situations could result in burns to the skin, even with the protection selected, burn injury should be reduced and survivable. Because of the explosive effect of some arc events, physical trauma injuries could occur. The PPE requirements do not address protection against physical trauma other than exposure to the thermal effects of an arc flash.

4.15.1 Clothing and equipment used as protection for electrical hazards shall conform to the applicable specifications in Appendix F: *Specifications for Electrical Protective Clothing and Equipment*.

4.15.2 Shock Protection

A. Rubber Insulating Gloves and Sleeves

A.1 Workers shall wear rubber insulating gloves when the worker's hand crosses the Restricted Approach Boundary. See Appendix A: Approach Boundaries for Shock Protection.

A.2 Workers shall wear rubber insulating sleeves when the worker's arm crosses the Restricted Approach Boundary. As an alternative to wearing rubber insulating sleeves the exposed energized conductors or circuit parts can be insulated from the worker.

A.3 Rubber insulating gloves and sleeves shall be rated for the voltage for which they will be exposed. Class designations and the corresponding maximum use voltages are shown in Table 1.

A.4 Always wear leather protectors over rubber insulating gloves to provide protection against cuts, punctures, and abrasions except under limited-use conditions when small equipment and parts manipulation necessitate high finger dexterity. When rubber insulating gloves are used without leather protection, see below for what is required.

- Do not perform any activity that risks cutting or damaging the rubber insulating glove.
- Gloves shall not be reused until they have been electrically tested as described in A.8.
- The maximum use voltage of the rubber insulating glove must be adjusted as shown in Table 1.

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4 Procedure continued

4.15 Protective Clothing and Equipment for Electrical Tasks continued

4.15.2 Shock Protection continued

A. Rubber Insulating Gloves and Sleeves continued

Table 1 – Rubber Insulating Glove & Sleeve Maximum Use Voltage

Class Designation	Maximum AC Use Voltage, rms, V	Maximum DC Use Voltage, avg, V	Maximum AC Glove Use Without Leather Protectors, rms, V	Maximum DC Glove Use without Leather Protectors, avg, V
00	500	750	250	375
0	1,000	1,500	500	750
1	7,500	11,250	1,000	1,500
2	17,000	25,500	7,500	11,250
3	26,500	39,750	17,000	25,500
4	38,000	54,000	26,500	39,750

A.5 Inspect rubber insulating gloves and sleeves for holes; rips or tears; ozone cutting/checking or ultraviolet damage; and signs of chemical deterioration before each day's use and immediately following any incident that may have caused damage.

A.6 Insulating gloves shall be given an air test, along with the inspection. The procedure should then be repeated with the glove turned inside out. The glove is filled with air, either manually by trapping air in the glove at the wrist or with a powered inflator, and then checked for leakage. The leakage is detected by listening for escaping air or by holding the glove against the tester's cheek to feel for air that is escaping.

A.7 Equipment with a hole, tear, puncture, or cut; ozone cutting or ozone checking (that is, a series of interlacing cracks produced by ozone on rubber under mechanical stress); an embedded foreign object; any of the following texture changes: swelling, softening, hardening, or becoming sticky or inelastic; or any other defect that damages the insulating properties shall not be used

ASTM F1236 (latest edition), *Standard Guide for Visual Inspection of Electrical Protective Rubber Products*, presents methods and techniques for the visual inspection of electrical protective equipment

4 Procedure continued

4.15 Protective Clothing and Equipment for Electrical Tasks continued

4.15.2. Shock Protection continued

A. Rubber Insulating Gloves and Sleeves continued

A.8 Rubber insulating gloves and sleeves must be subjected to periodic electrical tests.

- Testing must be done (including documentation) in accordance with ASTM F496 or more stringent requirements to comply with local jurisdictions.
- The maximum interval between tests shall be in accordance with Table 2.

A.9 Rubber insulating gloves and sleeves must be stored properly to ensure the integrity of the insulating properties.

Table 2 – Maximum Interval between Electrical Tests for Rubber Insulating Gloves and Sleeves

rubber insulating gloves	• before first issue and every six (6) months thereafter[1] • upon indication that insulating value is suspect • after repair • after every use without leather protectors
rubber insulating sleeves	• before first issue and every twelve (12) months thereafter[1] • upon indication that insulating value is suspect • after repair

[1] If the insulating gloves or sleeves were electrically tested but not issued for service, the insulating gloves or sleeves may not be placed into service unless they have undergone electrical testing within the previous twelve (12) months.

B. Insulated Tools and Equipment

B.1 Workers shall use insulated tools or handling equipment, or both, when working inside the restricted approach boundary.

B.2 Insulated tools shall be rated for the voltages on which they are used. They shall be designed and constructed for the environment to which they are exposed and the way they are used.

B.3 Insulated tools and equipment shall be inspected prior to each use to look for damage to the insulation or damage that may limit the tool from performing its intended function or could increase the potential for an incident (e.g., damaged tip on a screwdriver).

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4 Procedure continued

4.15 Protective Clothing and Equipment for Electrical Tasks continued

4.15.2. Shock Protection continue

B. Insulated Tools and Equipment continued

B.4 Fuse or fuse holder handling equipment, insulated for the circuit voltage, shall be used to remove or install a fuse if the fuse terminals are energized.

B.5 Ropes and handlines used within the limited approach boundary shall be nonconductive.

C. Jewelry and Clothing

Do not wear conductive articles of jewelry and clothing (such as watchbands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, metal headgear, or metal frame glasses) within the restricted approach boundary or where they present an electrical contact hazard with exposed energized electrical conductors or circuit parts.

4.15.3 Arc Flash Protection

When interaction with energized electrical equipment that could cause an arc flash hazard is taking place, all personnel within the arc flash protection boundary shall wear protective clothing and other equipment.

A. AC Voltage Equipment

Appendix D: *Arc Flash Protective Clothing and Equipment* shall be used to determine appropriate arc flash PPE based on the incident energy for the equipment determined by an incident energy analysis**.**

B. DC Voltage Equipment

DC voltage equipment is to be incorporated into the facility incident energy analysis as soon as practical, but no later than the next 5-year revalidation. After DC voltage equipment is included in the incident energy analysis, Appendix D: *Arc Flash Protective Clothing and Equipment* shall be used to determine appropriate arc flash PPE.

Until a facility's direct current (DC) voltage equipment is included in an incident energy analysis, the available fault current in conjunction with Appendix C: *Arc Flash PPE and Arc Flash Boundaries for Direct Current (DC) Systems* shall determine appropriate arc flash PPE and the arc flash protection boundary.

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4.15 Protective Clothing and Equipment for Electrical Tasks continued

4.15.4 Clothing Requirements

A. If arc-rated clothing is required, it shall cover associated parts of the body as well as all non-melting, untreated natural fiber (flammable) apparel while allowing movement and visibility.

B. Clothing shall cover exposed areas as completely as possible. Fasten shirt and coverall sleeves at the wrist. Tuck shirts into pants. Close shirts, coveralls, and jackets at the neck.

C. If arc-rated clothing is required, garments worn as outer layers over arc-rated clothing, such as jackets or rainwear, shall also be made from arc-rated material.

D. Avoid contaminating the surface of arc-rated clothing with materials such as oils, grease, DEET, etc. as these materials can reduce the level of protection the clothing is designed to offer.

E. Personnel are permitted to use non-melting, untreated natural fiber (flammable) clothing when an Arc Flash Hazard Analysis has shown the Incident Energy to be below 1.2 cal/ cm^2 (5 J/cm^2) at the working distance or under arc-rated clothing when performing electrical tasks. If using non-melting, untreated natural fiber (flammable) clothing under arc-rated clothing, the arc-rated garment must not break open at the expected arc exposure incident energy level to prevent ignition of the flammable garments.

F. Do not wear clothing made from flammable synthetic materials that melt at temperatures below 600 degrees F (315 degrees C), either alone or in blends, while performing electrical tasks.

F.1 Exception 1: Fiber blends that contain materials that melt shall be permit- ted if such blends are arc-rated and do not exhibit evidence of melting and dripping during arc testing. ASTM F1506 and ASTM F1959/F1959M contain the required test method. The clothing manufacturer is expected to provide this information about the garments they supply.

F.2 Exception 2: An incidental amount of elastic in non-melting fabric under- wear or socks shall be permitted.

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4.16 Clothing for Flash Fire Protection

4.16.1 Requirements – Flame-Resistant Garments

Each site/unit shall use the hazard assessment process to evaluate the work environment to determine the requirement for personnel to wear flame-resistant garments for protection against a flash fire.

4.16.2 Factors – Flame-Resistant Garments

Factors determining if flame-resistant garments are required shall include but not be limited to the following:

- Proximity of the work to be performed to a hazard presenting a flash fire hazard
- The presence of flammable materials (vapors or dust) in the environment during process operations
- The potential for the task being performed to increase the possibility of a flammable release
- The presence of engineering controls designed to reduce exposure to flammable materials present during normal operations
- Accident history

4.16.3 Guidance – Flame-Resistant Garments

Guidance for evaluating the need for flame-resistant clothing (FRC) to protect personnel from potential flash fires is provided in Appendix E: *BASF Flash Fire FRC Assessment Tool*, based upon NFPA 2113: *Standard on Selection, Care, Use, and Maintenance of Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire*.

4.17 Hearing Protection

4.17.1 Scope

Hearing protection is required in all process and tank farm operating areas of the plant. Signs are posted indicating when hearing protection is needed. In addition, the following areas of the site have been designated as high noise areas:

- Boiler Area
- *Dicamba air compressor area*
- DMTA refrigeration unit
- FFP/WOD area

4.17.2 Hearing Conservation Program

A. Requirements

A hearing conservation program will be implemented whenever employee noise exposures equal or exceed an 8 hour time-weighted average (TWA) of 85 dBA or a 12 hour TWA of 82.5 dBA. The program will include:

- Identification of affected job classifications
- Monitoring
- Recordkeeping
- Audiometric Testing
- Training

4 Procedure continued

4.17 Hearing Protection continued

4.17.2 Hearing Conservation Program continued

B. Affected Job Classifications

Based on an exposure assessment, the work place and workers that are monitored. If monitoring results indicate that noise levels are at or above the action level of 85 dBA for an 8 hour TWA or 82.5 dBA for a 12 hour TWA, these employees will be added to the Beaumont Site Hearing Conservation Program. Employees exposed to noise levels above the action level will be notified in writing.

C. Recordkeeping

Noise monitoring records are retained indefinitely. Employees may request their noise monitoring records at any time.

D. Audiometric Testing

A baseline audiogram must be obtained for all employees in the hearing conservation program within 6 months of the employee's exposure at or above the action level. Annual audiograms are required every year thereafter. This is coordinated through the plant nurse.

E. Noise Control

If employees are exposed to 8 hour TWA above 90 dBA, engineering and/or work practice controls shall be utilized when feasible.

F. Types of Hearing Protection

- Hearing protection provided to employees must have a noise reduction rating (NRR) sufficient to reduce the noise exposure level to below 85 dBA for 8 hour shifts and 82 dBA for 12 hour shifts.
- The following shall be used to adjust the manufacturer's NRR when determining if hearing protection is adequate:
  Exposure Level = Measured Noise (in dBA) - (NRR-7)/2

G. Disposable foam plugs (pre-shaped or molded) are used at the Beaumont site. Hands should be clean before insertion into ear. Plugs should be inspected for dirt or grease before insertion into ear. Disposable earplugs should be thrown away after one-time use unless they are cleaned before reuse.

H. Training

Employees in the hearing conservation program will receive initial and annual training which includes:

- Effects of noise on hearing
- Purpose of hearing protectors
- Advantages and disadvantages of various types
- Instructions on selecting, fitting, use of and care of hearing protectors
- Purpose of audiometric testing and explanation of the test procedures
- Areas where hearing protection is required

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5 Responsibilities

5.1 Beaumont Management

Managers and supervisors are responsible for the administration of the PPE program.

5.2 Beaumont Employees

Each employee is responsible for adhering to the instructions contained in this procedure and the PPE charts.

6 Related documents

BASF Corporate Procedure N-ID-OSA 007
BASF Beaumont Site PPE Charts
NFPA 70E Tables

7 Attachments

Appendix A: Approach Boundaries for Shock Protection

Appendix B: Tasks with Arc Flash Hazard Potential

Appendix C: Arc Flash PPE and Arc Flash Boundaries for Direct Current (DC) Systems

Appendix D: Arc Flash Protective Clothing and Equipment

Appendix E: BASF Flash Fire FRC Evaluation Tool

Appendix F: Specifications for Electrical Protective Clothing and Equipment

Appendix G: Filter Lenses for Protection Against Radiant Energy

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