



Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSPP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

Prepared by: Todd Lansi	Supersedes Date:
Approved by:	Approved Date:

1.0 PURPOSE

The purpose of this mandatory policy is to provide minimum requirements for appropriate protection for all personnel while performing work when potential exposure to hazardous chemical pressurized material could occur within the Hot Zone which is a minimum radius of 12 feet boundary from a Hazardous Chemical Pressurized System containing chemical transfer equipment as well as for Body Protection for Hazardous Material other Than Chemical. That policy is defining the detailed requirement for the type of additional personal protective equipment to be worn while performing different tasks in the “Hot Zone” area and when performing task on system involving Steam, condensate and hot material other than chemical $\geq 60\text{ }^{\circ}\text{C}/140\text{ }^{\circ}\text{F}$.

2.0 SCOPE

This policy applies to all HSPP employees, visitors, vendors, and contractors who enter and/or work in the designated hot zone.

3.0 RESPONSIBILITIES

- 3.1 The Safety Manager is responsible for oversight of this policy, ensuring its accuracy and compliance with regulatory and corporate requirements.
- 3.2 The General Manager is responsible for implementation of this policy.
- 3.3 All area Superintendent are responsible to identify the required hot zones in their area and ensure they designed and built to meet the requirements. See Hot Zone Design Standards below.
- 3.4 All Supervisors, Superintendents and Managers are responsible for ensuring that employees, contractors, vendors, or visitors under their charge comply with this policy. Supervisors have the primary responsibility for enforcement of this policy in their area.
- 3.5 Every employee is responsible for wearing the proper PPE when required by this policy and must use, clean, and maintain the specific PPE in the manner in which he or she was trained.

4.0 DEFINITIONS

- 4.1 **Hot Zone**- An approach boundary limit at a minimum distance from 12 feet (when feasible) of a **Hazardous Chemical Pressurized System** where additional chemical PPE is required as defined.
- 4.2 Hazard **Hazardous Chemical Pressurized System** - Any system involving materials that are either:
 - Any Corrosive/Acid chemical material;
 - Any chemical material pressurized above 180 psi;
 - Any chemical material Above 140°F or below -22°F;
 - Any chemical material acutely toxic by skin/eye exposure;
 - Any chemical material below 2.5 or above 12.5 pH;
 - Any chemical material 3 or above on the HMIS Health scale.
 - Hot Stock Slurry

Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSPP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

- 4.3 **Body Protection for Hazardous Material other Than Chemical:** *Minimum additional required thermal personal protective equipment when performing task involving steam, condensate and hot material other than chemical ≥ 60 °C/140 °F. These include opening/draining/flushing/venting on process piping/equipment, line breaking task, connecting/disconnecting hoses from a process (line breaking) or when opening / closing valves on process piping having these listed material.*
- 4.4 **Chemical Protective Suit Level 0** - Minimum required personal protective equipment for retrieving samples of 1 gallon MAX for hot stock, hot condensate, caustic, acid, or other hazardous chemical samples at ambient temperature. This equipment includes long CarbonX coat, appropriate long chemical cut-resistant gloves worn under sleeves for the substance being handled, hard hat, face shield with clear chin guard, chemical splash goggles, safety boots (min 8”) or chemical resistant boots.
- 4.5 **Line Breaking** - Refers to any job requiring opening of process piping or equipment. This includes but is not limited to: permanent and/or temporary bypass, connecting fittings, opening/closing valves, pumps, vessels and tanks.
- 4.6 **Chemical Protective Suit Level 1** - Equipment required when there is a potential of exposure to **Hazardous Chemical Pressurized System** and that requires:
- Chemical resistant hooded jacket and pants or one piece suit with the ability to be cinched to the face, wrists and ankles (rated for light chemical splash and immediate escape);
 - Chemical resistant cut-resistant gloves to be used in the proper application;
 - Chemical resistant boots or safety boots (min 8”);
 - Chemical splash goggles;
 - Hard hat with a chemical face shield and clear chin guard;
 - All extremities shall be sealed with chemical resistant tape or other safe means of sealing (ex: Velcro) prior to entry into the **Hot Zone area**.
- 4.7 **Chemical Protective Suit Level 1.5 for Line Breaking Protective Suit** – Equipment required when there is a high probability of exposure to **Hazardous Chemical Pressurized System** when opening the components of a hazardous chemical/substance system. This requires the following equipment:
- Chemical resistant hooded jacket and pants or one piece suit with the ability to be cinched to the face, wrists and ankles (rated for moderate to heavy splash and immediate escape);
 - Chemical & cut resistant gloves to be used in the proper application;
 - Chemical resistant boots or included in one-piece suit;
 - Chemical splash goggles;
 - Hard hat with a chemical face shield and chin guard;
 - All extremities shall be sealed with chemical resistant tape or other safe means of sealing (ex: Velcro) prior to entry into the **Hot Zone area**.

Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

- 4.8 **Body Protection for Hazardous Material other Than Chemical Protective Suit Level 1.5**
 - 1 piece or 2 pieces hooded suits, made with PVC or Rubber FR2 OR special material rated to provide resistance to hot material (Stedair -300 RFP or CR80-Repeal).
 - Suits must be sealed at extremities (arms, legs, face with elastic OR tape OR Velcro) .
 - Appropriate min 8” safety boots rated for these materials
 - Appropriate long cut & heat resistant gloves worn for the substance being handled.
 - hard hat, face shield with chin guard & splash goggles OR full hood over head and shoulder including a permanent face shield or full-face mask.

- 4.9 **Chemical Protective Suit Level 2** – Equipment required for abating an excursion of a chemical process that requires a HAZMAT suit to be utilized by the competently trained employee for abating the situation. The process must be shut down and isolated to minimize the release of stored energy from the process.

- 4.10 **Chemical Abatement Level 3** – Specific HAZMAT Contractor for the abatement of a process chemical release to safely manage potential exposure to process not isolated.

5.0 HAZARD ASSESSMENT

- 5.1 A risk assessment shall be performed to determine permanent boundaries that are to be established around each **Hazardous Chemical Pressurized System**. The risk assessment will be based on the potential exposure to, and the tasks being performed near the hazardous chemical pressurized system. The hot zone will be clearly marked, and specific minimum PPE requirements will be posted.

- 5.2 A risk assessment must be conducted whenever there is a physical change to a **Hazardous Chemical Pressurized System**.

- 5.3 During temporary work, such as maintenance activities, temporary barriers such as caution tape should be utilized to establish a conservative safe boundary for close proximity exposure, after having completed a 360° Risk Analysis and a Line Break Permit (hazard assessments) to meet designated safety requirements approved by management.

- 5.4 **Handling or Potential Exposure:** PPE must be worn during maintenance task, operational task and cleanup of areas, when handling or potential exposure to chemicals on parts, pumps, tools and when moving/handling parts/equipment, disassembly and rigging. Employee and contractor must verify that all hazardous chemicals/process materials are cleaned/removed from area, parts, tools, etc. before PPE is removed/doffed. This must be noted on the 360° Risk Analysis if this type of hazard exist or has the potential to cause burn injury or first aid.

Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

6.0 GENERAL REQUIREMENTS

- 6.1 All tasks around hazardous systems where spray or leak potential exists will require the use of the additional PPE required by this policy within the **Hot Zone** approach boundary.
- 6.2 Specifically, but not limited to, this policy covers any change in energy state for **Hazardous Chemical Pressurized System** such as acid, alkaline, oxidizing chemical systems such as black liquor, green liquor, white liquor, caustic, acid, and bleaching agents such as chlorine dioxide, peroxide, and sodium hydrosulfite.
- 6.3 Tasks such as retrieving pressurized samples less than 1 gallon from hot stock, hot condensate process, from caustic, acid, or other hazardous chemical process at ambient temperature are examples of tasks where the minimal **Chemical Protective Suit Level 0** or greater must be used.
- 6.4 Tasks such as operating valves, equipment startup, equipment shutdown, isolating processes, and pressurized sample collection greater than 1gallon are examples of tasks where the **Chemical Protective Suit Level 1** must be used as minimum level.
- 6.5 Tasks such as line breaking, draining/flushing/venting processes, and connecting/disconnecting hoses from process or tank trucks on **Hazardous Chemical Pressurized System** are examples of tasks where the **Chemical Protective Suit Level 1.5** must be used as minimum level.
- 6.6 Tasks such as opening/draining/flushing/venting on process piping/equipment, line breaking task, connecting/disconnecting hoses from a process (line breaking) or when opening / closing valves on process piping on steam, condensate and hot material other than chemical $\geq 60\text{ }^{\circ}\text{C}/140\text{ }^{\circ}\text{F}$ are examples where **Body Protection for Hazardous Material other Than Chemical Protective Suit Level 1.5** must be used as minimum level.
- 6.7 Pump and valve clusters shall have a safe zone established as a **Hot Zone** and marked where entry within the boundary requires the above-mentioned PPE. The purpose of the designated **Hot Zones** around hazardous chemical areas is to communicate the requirement for the type of personal protective equipment to be worn while in the **Hot Zone** area.

7.0 PPE UTILIZATION GUIDELINES

- 7.1 **Chemical Protective Suit Level 1** - This level of personal protection can only be used if there are no leaks coming from the system being serviced and is to be used as a deterrent for splash. If leak is observed, the employee must leave the area immediately and notify their supervision of the situation.
- 7.2 **Chemical Protective Suit Level 1.5**— this equipment shall be worn when performing tasks that involve the necessity of opening components of **Hazardous Chemical Pressurized Systems** as identified in the Line Breaking Policy. This personal protective equipment is to be used as a deterrent for potential heavy splash from hazardous substances and is not intended for working in the hazardous substance.
- 7.3 **Chemical Protective Suit Level 2**— Use of this option is required for abating an excursion of a hazardous chemical escaping from its process containment (piping, pump, tank, dike, etc.) only. The process must be shut down and isolated to minimize the release of stored energy from the process as possible.

Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSPP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

7.4 Respirator Protection – Respirator use is required when there is a possible exposure to certain chemicals such as opening the components of a system to perform a Line Break or when draining, flushing, venting, or disconnecting hoses. See the Line Break Policy for appropriate respirator use.

8.0 ESTABLISHING HOT ZONES

8.1 The purpose of designated “Hot Zones” around hazardous chemical areas is to communicate the requirement for the type of personal protective equipment to be worn while performing *different tasks* in the “Hot Zone” area. This area includes the following equipment:

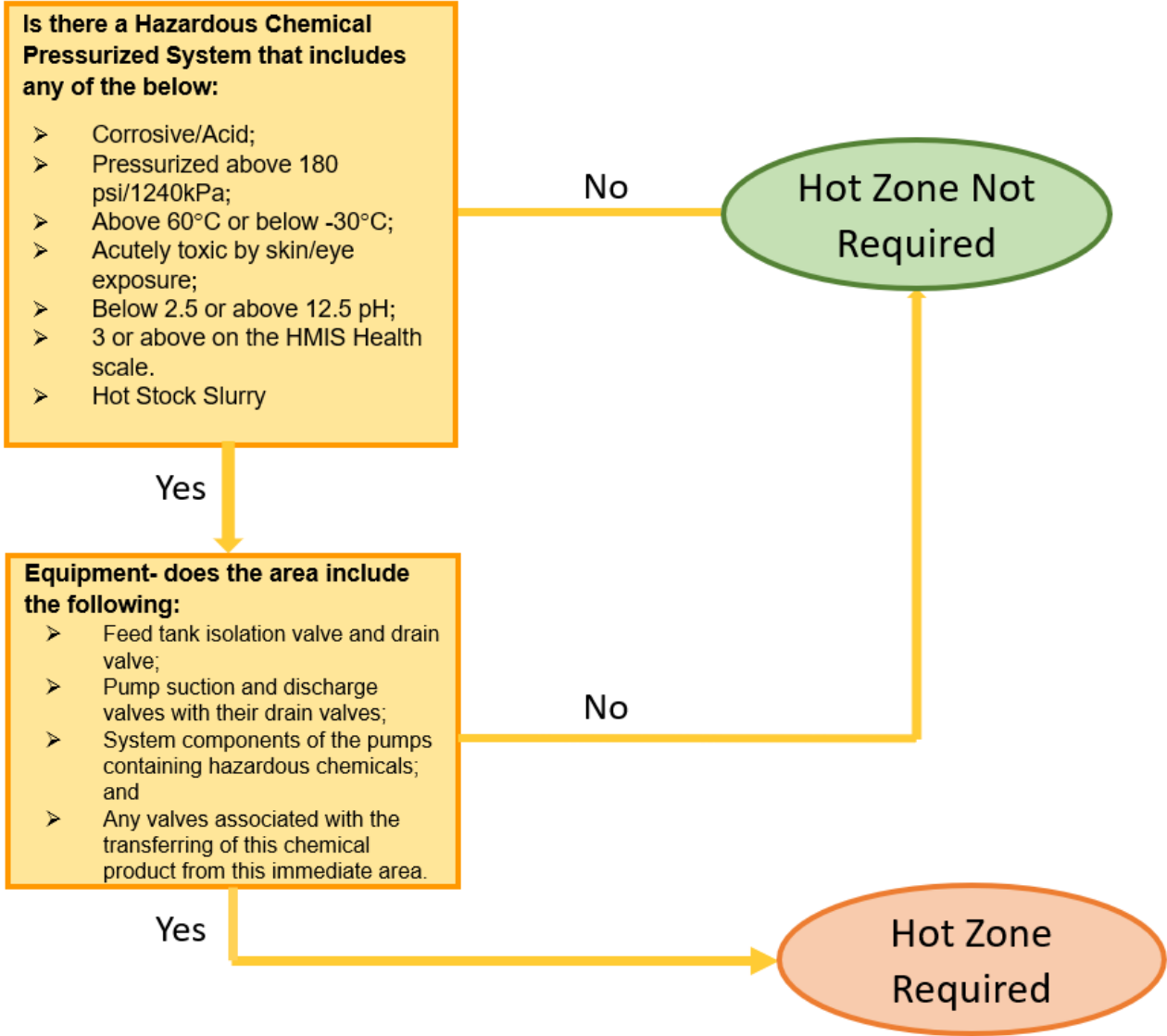
- Feed tank isolation valve and drain valve; OR
- Pump suction and discharge valves with their drain valves; OR
- System components of the pumps containing hazardous chemicals; OR
- Any valves associated with the transferring of this chemical product from this immediate area (example: crosstie valving).

8.2 Hot Zone Markings / Protections

- Permanent Hot Zones - The area must be identified / protected by the following:
 - Orange chain hung at least 12 feet from hazard or
 - Orange chain hung less than 12 feet from hazard must also have solid barriers or double hung curtains.
 - Identification signs listing as Hot Zone, Hazard Present and required PPE.
 - Orange paint identifying area when feasible.
- Temporary Hot Zones - The area must be identified by the use of barricade tape with tags or barriers from all approach directions that signify a temporary Hot Zone has been established.
- Care must be taken in assessing the potential hazard in identifying the potential for spray and splash when marking the Hot Zone areas. Walkways, stairwells, process piping flange, process pump and other pedestrian passageways located within the **Hot Zone** of a **Hazardous Chemical Pressurized System** are to be protected with proper mitigation barriers to prevent incidental hazardous chemical or substance contact with personnel.

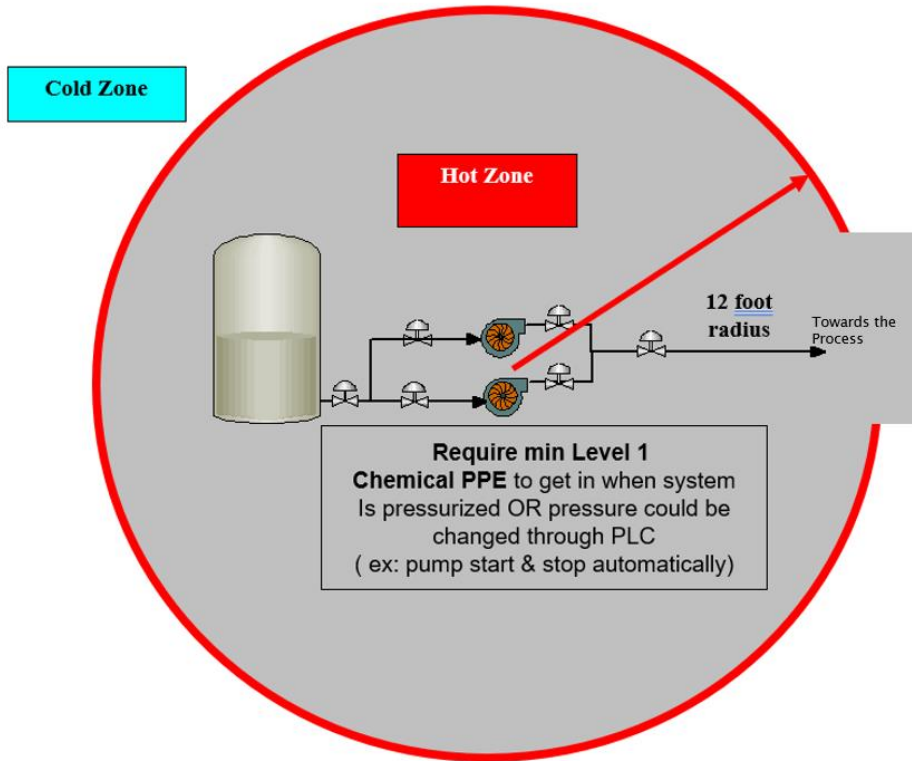
Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSPP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

Determining if a Hot Zone is Required



Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

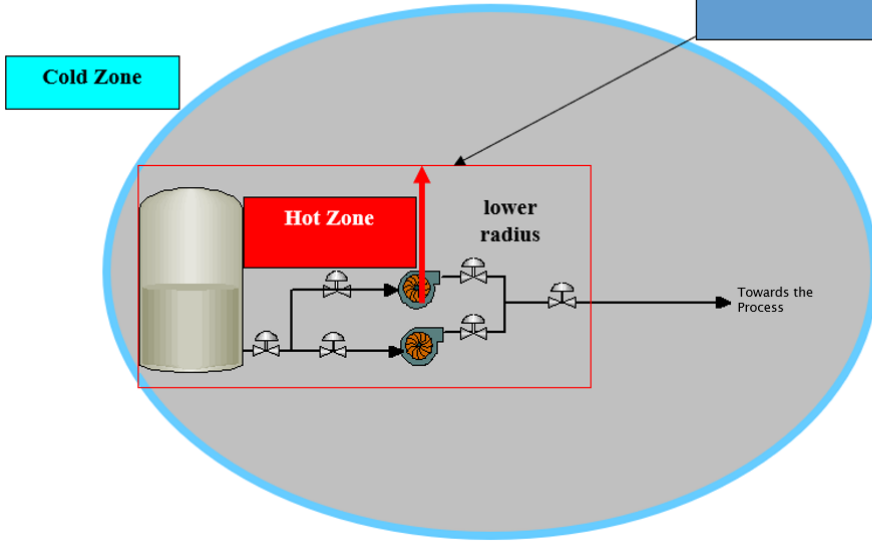
Minimum Guideline for Hot Zone Boundary



Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

How to Reduce the Boundary

Mitigation Barriers installed:
Permanent curtains 8-12 feet high



Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSPP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

9.0 HOT ZONE DESIGN STANDARDS

If Hot Zone requires to be less than 12' from point of hazard the below standard is to be followed:

Must be designed to

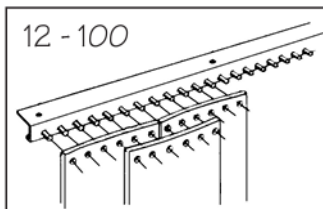
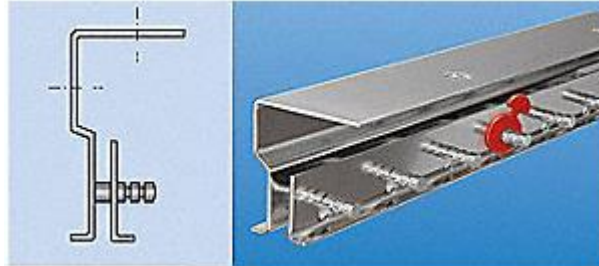
- Contain sprays within the hot zone with no gaps.
- Must be made of compatible building materials such as PVC or Neoprene. Please see attached table for compatibility with chemicals.
- Be built with compatible building material for the area chemicals.
- Can be designed with either a solid or panelled curtains. If solid, ensure they are designed with evacuation purposes in mind i.e. a sudden spray and you need to leave the area quickly.
- Consider Aggress/Egress- curbs, drops, sprays, etc.
- Designed to stay in place.
- Determine if you will require to visually see through the shielding/curtain, type of material may change.
- If hot zone is over grading, consider extending hot zone for floors below.

9.1 Permanent Panelled Curtains

- Minimum width- 12"
- Minimum thickness- 3mm
- Must overlap 50% on each side to maintain a double layer.
- Must be weighted down in outdoor conditions to control movement.
- Must be secured with bolts utilizing a mounting bracket.
- Two-way visibility through the exit/entrance area
- Exit/Entrance identified with red or orange strip.
- Curtain must be 8-12 feet high unless they fully enclose the ceiling to floor.
- Curtains must be no further than a ½ inch off the ground.
- Clearly identify hazards on other side of panelled walls i.e. drops, curbs, vehicle traffic.



Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSP-460-033
	Date of Issue: September 10, 2024
	Effective Date:



12” wide strips - 100% overlap

Hang the first strip to the far left, align the second strip with first strip. Repeat to the far right. Center the remaining strips over the seams.

9.2 Permanent Solid Curtain

- Must have a minimum of 2 means of egress.
- Egress must be clearly identified and made from transparent material.
- Exit/Entrance identified with red or orange strip on either side of entrance/egress.
- Must be made of compatible building materials such as PVC or Neoprene. Please see attached table for compatibility with chemicals.
- Excluding the entrance the material can be transparent or opaque.
- Must be secured from movement.
- Must be secured with bolts utilizing a mounting bracket.
- Curtain must be 8-12 feet high unless they fully enclose from the ceiling to floor.
- Curtains must be no further than a ½ inch off the ground.

Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program
--

Number: HSPP-460-033

Date of Issue: September 10, 2024
--

Effective Date:



9.3 Temporary Mobile Hot Zone

- Same requirement as either permanent solid or panelled curtains
- Must be easily movable, i.e. light weight with handle to assist in carrying or wheels etc.
- Must have a means to secured them from accidental movement i.e. wheel locks, interlocking panels etc.

9.4 Sign Requirements

- 2 types of signs required. Hot Zone sign attached to orange chain and PPE requirements to enter.
- Signs must be clear, easily legible and located at all area of access
- Must state the hazardous chemical and the required PPE to enter the area for the task.
- Must be made of a material suitable for the area and the conditions applied to it
- Must maintained in good condition

Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSPP-460-033
	Date of Issue: September 10, 2024
	Effective Date:






CAUTION

HOT ZONE




White Liquor Pressure Filter

NO ENTRY BEYOND THIS POINT WITHOUT REQUIRED PPE.

Level #1.5

 +  +  +  +

Hard hat and face shield with chin guard Googles CR Rubber Gloves 8" Min chemical resistant safety boots

 or  or  + 

XP Max suit, 2-piece vinyl suit, or Tychem suit Seal Extremity Openings with tape or Velcro

Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSPP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

10.0 WAIVING HOT ZONE REQUIREMENTS

- Hot Zones can be permanently or temporarily downgraded provided the hazardous pressurized chemical system, as highlighted in the decision flowchart has been isolated, depressurization and rendered safe.
- Once hot zone is downgraded a Hot Zone Free sign is to be hung over the Hot Zone Sign.
- Before removing the isolation, repressurizing the system the hot zone free sign must be removed from all entrances to the area.



- If permanent Hot Zones removals are required, the Management of Change process will be used.

11.0 TRAINING

- All employees shall be adequately trained in the selection, care and use of all PPE required in the workplace. Training shall include:
 - When specific PPE is necessary;
 - What PPE is required;
 - How to properly wear, adjust, clean and inspect PPE and;
 - PPE limitations.
- New hires will receive this training prior to commencement of work, and refresher training will be provided to all employees annually or anytime a physical change to a **Hazardous Chemical Pressurized System** is performed.
- All training shall be documented.

Hazardous Chemical & Hot Material PPE policy -Chemical Hot Zone Program	Number: HSPP-460-033
	Date of Issue: September 10, 2024
	Effective Date:

12.0 ATTACHMENTS

12.1 Record of Revisions

13 References:

**ATTACHMENT 1
RECORD OF REVISIONS**

Section	Revision Number	Effective Date	Description Of Changes
	0	01-March-2014	New document