

It is Resolute Forest Products' policy to minimize injuries resulting from various occupational hazards present at our sites by initially engineering and then administrative controls. When this is not possible, the use of personal protective equipment is required. This policy outlines the PPE requirements when working in a Hazardous Chemical Pressurized System "Hot Zone."

I. PURPOSE

The purpose of this mandatory Resolute FP 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 boundary 12 ft in radius from an area containing chemical transfer equipment.

II. SCOPE

This policy applies to all employees, contractors, carriers and visitors working on or visiting the Resolute FP Calhoun mill. This policy doesn't apply to tasks performed on steam, condensate and hot stock material except when retrieving samples. Specific PPE requirements for these hazards are referred within the Personal Protective Equipment (PPE) Safety Policy.

III. ADMINISTRATIVE DUTIES AND RESPONSIBILITIES

The Resolute Safety and Health Steering Committee or its designees are responsible for overseeing this policy. Each site must develop, review, and update its own specific PPE program when potential exposure to **Hazardous Chemical Pressurized System** material could occur. Implementation of this policy and the applicable site PPE program is the responsibility of each Site Manager or designee. All supervisors and managers are responsible for ensuring that employees, contractors, carriers or visitors under their charge comply with this policy. Every employee is responsible for wearing the proper PPE when required by this policy, by local facility requirements. Employees must use the specific PPE provided by the facility in the manner in which he or she was trained, and keep the equipment properly cleaned and maintained.

IV. DEFINITIONS

A) Hazardous Chemical Pressurized System - Any system involving substance as:

- Corrosive, caustic, or acidic materials with a pH below 2.5 or above 12.5
- Any Chemical material pressurized above 180 PSI
- Chemical Material above 60°C/140°F or below -30°C/-22°F
- Material acutely toxic by skin/eye exposure
- Hot Stock Slurry
- Health rating of 3 or lower on the GHS system, or 3 or greater on the NFPA Diamond

B) 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, hot tap, connected fittings, valves, pumps, vessels and tanks.

C) Chemical Protective Suit Level D – PPE requirements for entering a Hazardous Chemical Pressurized System (Hot Zone) for visual inspection or any task that does not include Line Breaking or rearranging flow routes or changing energy states:

- Chemical Splash suit (rated for light chemical splash and immediate escape)
- Chemical resistant gloves to be used in the proper application
- Chemical resistant boots or included in one piece suit
- Chemical splash goggles
- Chemical face shield with chin guard

D) Chemical Protective Suit Level C (without respiratory protection) – PPE requirements for Line Breaking or altering flow routes or energy states inside a Hazardous Chemical Pressurized System (Hot Zone):

- Chemical resistant hooded jacket and pants or one piece suit with the ability to be cinched to the face, to the wrists and ankles and (rated for moderate to heavy splash and immediate escape)
- Chemical resistant gloves to be used in the proper application
- Chemical resistant boots or included in one piece suit
- Chemical splash goggles
- Chemical face shield with chin guard
- All extremities shall be sealed with chemical resistant tape or other safe means of sealing prior to entry into the Hot Zone area.

E) Chemical Protective Suit Level B or Level A (abatement): – Any potential exposure or abatement that requires Level A or Level B chemical protection will be by HAZMAT trained personnel only. The process must be shut down and isolated to minimize the release of stored energy from the process.

F) Resolute Forest Products will not provide general or enhanced PPE for Contractor personnel. All contractor employees are responsible for wearing the proper PPE when required by this policy. Employees must use the specific PPE provided in the manner in which he or she was trained, and keep the equipment properly cleaned and maintained.

V. HAZARD ASSESSMENT

Each operating department shall perform a risk assessment based on the potential exposure to **Hazardous Chemical Pressurized Systems**, tasks being performed to determine permanent perimeters that are to be established, clearly marked around systems in a 12 ft radius, and specific minimum PPE related to this policy. A risk assessment must also be conducted whenever there is a change to a **Hazardous Chemical Pressurized System**.

Temporary work such as maintenance activities can utilize temporary barriers such as caution tape to establish a temporary 12 ft radius boundary from the potential exposure, after having performed a hazard assessment approved by Resolute FP management.

VI. GENERAL REQUIREMENTS

A. Minimal PPE for Hazardous Chemical Potential Exposure

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 12 ft radius approach boundary to the **Hot Zone**. Specifically, but not limited to, this policy covers any change in energy state for **Hazardous**

HAZARDOUS CHEMICAL PERSONAL PROTECTIVE EQUIPMENT SAFETY POLICY, HOT ZONES

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.

Tasks such as operating valves, equipment startup, equipment shutdown, isolating processes, draining processes, and pressurized sample collection more than 1 gallon etc. are examples of tasks where the **Chemical Protective Suit Level D** must be used.

Tasks such as line breaking, draining, flushing, venting, disconnecting hoses on **Hazardous Chemical Pressurized System** are examples of tasks where the **Chemical Protective Suit Level C** must be used.

Pump and valve clusters *shall* have a safe zone established as **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 working in the **Hot Zone** area.

B. Personal Protective Equipment – Utilization Guidelines

Chemical Protective Suit Level D - This level PPE can only be used if there are NO leaks coming from the system 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.

Chemical Protective Suit Level C - Line Breaking Protective Suit – This level PPE shall be worn when performing tasks that involve opening the components of a **Hazardous Chemical Pressurized System** as identified in the Line Breaking Policy, or altering flow routes or energy states inside the **Hazardous Chemical Pressurized System**. This personal protective equipment is to be used as a deterrent for *potential heavy splash* of a hazardous substance and is not intended for working in the hazardous substance.

Established Hazardous Chemical Pressurized System “Hot Zone”

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 working in the “Hot Zone” area. This area is considered to include the following equipment:

- 1.) Feed tank isolation valve and drain valve
- 2.) Pump suction and discharge valves with their drain valves
- 3.) The drive motor for the pumps
- 4.) Any valves associated with the transferring of this chemical product from this immediate area

The area should be effectively identified by the use of barricade tape, chains, barriers, use of signage, or barricade tags, painted lines or curtains. The size of this area should be based on the exposure to pedestrian traffic and proximity of the pedestrians to the hot zone area.

Care should 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 passage ways located within the **Hot Zone** of a **Hazardous Chemical Pressurized System** may be protected with proper mitigation barriers to prevent incidental hazardous chemical or substance contact with personnel.

C. Downgrading PPE Requirements

When the Hazardous Chemical Pressurized System environmental hazards have been eliminated and the potential for exposure has been significantly diminished, downgrading of the PPE requirements maybe considered. First, those definitions/conditions that categorize an area as a "Hot Zone" must be verified to a zero energy state.

Definition: Corrosive or acidic materials or materials with a pH below 2.5 or above 12.5
Verification: Sources must tested and pH must read between 6 to 8

Definition: Any Chemical material pressurized above 180 PSI
Verification: Pressure must be at atmospheric pressure

Definition: Chemical Material above 60°C/140°F or below -30°C/-22°F
Verification: Temperature must be ambient temperature

Definition: Material acutely toxic by skin/eye exposure
Verification: non-existent, no potential

Definition: Hot Stock Slurry
Verification: non-existent, no potential

Definition: Health rating of 3 or lower on the GHS system, or 3 or greater on the NFPA Diamond
Verification: non-existent, no potential

Hot Zone AREA energy isolation requirements for PPE downgrading consideration

When considering downgrading PPE in a hot zone, adjacent hazardous systems that feed into the hot zone, must also be isolated to ensure zero energy. To downgrade the required PPE, the line breaking policy requirements will apply to adjacent lines, tanks, and vessels meeting the definition criteria in section IV A. even when work is not to be performed on these adjacent systems. These other chemically energized systems still present an exposure hazard in the hot zone area and must be addressed.

Formal Risk Assessment

When these conditions are satisfied and verified, a task/site specific risk assessment must be conducted on the basis on the potential exposure. Operational, maintenance/contractor, and safety management must approve and sign off on the risk assessment evaluation. Any change in conditions, work scope, or personnel, dictates a formal re-evaluation of the risk assessment. This formal review must be completed by supervision. Any reintroduction of the Hazardous Chemical Pressurized Systems, "Hot Zone" definition/criteria negates the Downgrading and all "Hot Zone" PPE requirements are immediately reinstated.

VII. 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 trainings shall be documented.

VIII. DOCUMENTATION/RECORDS

Each facility is expected to maintain the latest version of this policy as per their individual document control process. Resolute's Safety and Health Steering Committee or its designees will maintain the original and subsequent revisions. Each site shall review their site-specific PPE program at least annually, and update it as necessary. A copy of the corporate policy and site-specific program must be available at each location to be reviewed by employees of Resolute FP or any contractor.



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