

## BP OIL -- TOLEDO REFINERY

<b>Document Type:</b> Procedure	<b>Refinery Wide</b>	<b>Procedure No.:</b> SAF 115
<b>Effective Date:</b> 9-1-2013	Corrosive Hazard Area Identification	<b>Revision No.:</b> 1
<b>Owner:</b> J.D. Parker	<b>Authorized By:</b> D. C. Durnwald (signature on file)	<b>Page</b> 1 of 4

<b>SCOPE</b>	This procedure describes what areas are required to be marked with aurora pink to identify corrosive hazards requiring increased personal protective equipment.
<b>HEALTH</b> Special PPE & Special Hazards	Proper selection and use of PPE prevents harmful exposure to corrosive materials.
<b>SAFETY</b>	Protection of body from corrosive material exposure in the event of an unexpected release.
<b>REFERENCE DOCUMENTS</b>	SAF-026 Personal Protective Equipment Procedure Refining Safety Requirements for Sulfuric Acid Alkylation (REF GP 47-0004)
<b>SPECIAL MATERIALS &amp; EQUIPMENT</b>	Personal Protective Equipment, Safety Glasses w/side shields, Respiratory protection as necessary, Goggles, Hard Hat, Face Shield, Fire Retardant Clothing, Ear Plugs, Work shoes/boots with safety toe, Rubber (chemical) Gloves, Chemical rain suits.
<b>QUALITY</b>	ANSI/ASSE Z87.1-2003 approved eye and face protection ISEA/ANSI Z89.1-2003 approved helmet NIOSH – approved respirators
<b>ENVIRONMENTAL</b>	N/A

OVERVIEW

This procedure defines areas that need to be painted aurora pink and includes the minimum expectations for Personal Protective Equipment (PPE) when entering or working in an aurora pink area within the Toledo Refinery. Aurora pink identifies areas that have equipment such as pumps, vessels, and sample stations that contain corrosive material with a pH less than 2.0 or greater than 12.5. It is mandatory for all BP Toledo Refinery employees, contractors and visitors to wear increased PPE to protect against corrosive exposures at Toledo Refinery as described in this procedure. Areas included, but not limited to, are all process and utility areas, blender, marine dock, water intake, waste water treatment areas, and within the tankage dikes that have equipment (excluding piping) that contain corrosive materials. All jobs begin with a pre-task risk assessment to identify the necessary PPE to safely complete the task at hand.

**Statement of Procedure**

**Minimum PPE required outside of the green zone includes: Fire Retardant Clothing, hardhat, safety glasses w/sideshields, work shoes, gloves when performing work or exposed to cut hazards, and hearing protection. Personal H2S meters are required to warn about the potential presence of hazardous concentrations of H2S. Additional PPE requirements & exceptions are defined in this procedure for entering a corrosive hazard areas. See SAF-026 for a map of the green zone.**

<p>1.0 Definitions</p>	<p>__1.1 Acids – Corrosive material that has a pH less than 2.0.</p> <p>__1.2 Aurora Pink – A fluorescent pink color that identifies areas that contain pumps, vessels or other equipment that has an increased potential for unexpected leaks excluding piping in the units and pipe alleys.</p> <p>__1.3 Caustics – Corrosive material that has a pH greater than 12.5</p> <p>__1.4 OSHA Hazard Definitions CFR1910.1200 Appendix A: "Corrosive:" A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact by the method described by the U.S. Department of Transportation in appendix A to 49 CFR part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure. This term shall not refer to action on inanimate surfaces.</p> <p>__1.5 The Environmental Protection Agency (EPA), in regulating hazardous waste, uses pH as the criterion for determining if a substance is corrosive. Materials with a pH of less than 2.0 or greater than 12.5 are considered to be corrosive.</p>
<p>2.0 Equipment that requires Painting of Aurora Pink Lines around it to Identify the Corrosive Hazard Area.</p>	<p>__2.1 Pumps that contain corrosive materials with a pH less than 2.0 or greater than 12.5.</p> <p>__2.2 Sample Stations where corrosives could be released to the atmosphere or surrounding area.</p> <p><b>2.3</b> Vessels including but not limited to tankage, reactors, drums, totes, and other containers excluding piping, <b>railcars, trucks and trailers.</b></p> <p>__2.4 Equipment that requires aurora pink demarcations shall be risk assessed by the area asset team that has the equipment in their area. This risk assessment is to identify the hazard potential of that equipment and the minimum sufficient safe distance area to be established from the equipment. An MOC shall be completed to establish the aurora pink area and the risk assessment shall be part of</p>

	<p>this MOC.</p> <p>__2.5 Portable tanks, totes, drums, or containers that have chemicals or materials meeting the criteria in 1.1 and 1.3 of this procedure will require the use of a corrosive materials sign and one of the following; aurora pink paint around the base of the portable container or the use of aurora pink duct tape on the container.</p> <p>__2.6 If a portable tote is insulated or covered, rendering the manufacturers label, SDS and any HAZCOM warning labels not readable, these signs and labels should be made available outside the covering and visible on all sides.</p>
<p>3.0 Minimum Personal Protective Equipment Requirements for Aurora Pink Areas</p>	<p>__3.1 Due to the potential of mechanical or structural failure of equipment that contains corrosive materials, faceshields (in addition to normal PPE) are required when entering an aurora pink area.</p> <p>__3.2 Entrants performing tasks (such as breaking containment when sampling or draining) in aurora pink areas shall wear chemical resistant hand protection when the potential for chemical exposure exists.</p> <p>__3.3 Pursuant to SAF-026 regarding Alkylation Units in 4.0: Additional PPE is required in sulfuric acid alkylation units for activities that involve potential exposure to acid or caustic systems where engineering safeguards, such as shields or closed systems, are not in place for protecting personnel from splash. Examples of these activities include sampling or draining, bleeding pumps, or preparing equipment for maintenance or opening equipment. Required PPE for these tasks shall include face shield and/or chemical goggles, acid/caustic-resistant gloves and boots, and acid/caustic-resistant jacket and pants (or other acid/caustic-protective clothing, such as tri-laminate Gortex/Nomex). This PPE should be considered during the risk assessment for other acid or caustic systems.</p> <p>__3.4 People (for example: carpenters) that may be working in an aurora pink area may wear chemical resistant goggles rather than a face shield if the risk assessment determines that other hazards are created from the face shield. The exception to wear goggles must be identified in the risk assessment for the task. For example if the safe distance at grade is 5 feet from the equipment the corrosive hazard area would also be 5 feet above the equipment, thus work above 5 feet would not require special PPE as stipulated in this procedure.</p> <p>__3.5 When a unit is in "TAR Conditions" an exemption for corrosive substance areas may be established and the following may apply:</p> <ol style="list-style-type: none"> <li>1. Areas that still contain corrosive materials will be roped off and face shield usage will be required inside these roped locations.</li> <li>2. Face shield will not be required in aurora pink demarcated areas that are not roped off and that have been isolated and prepared for maintenance (i.e. flushed, steamed, zymed, etc.)</li> </ol> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center;"><b>WARNING</b></p> <p>The aurora pink identification around equipment is not intended to protect a person from the hazard by providing a safe distance or barrier, but rather to alert personnel of equipment containing a</p> </div>

	corrosive hazard.
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**Revision History**

**Revision history**

The following information documents at least the last 3 changes to this document, with all the changes listed for the last 6 months.

Date	Revised By	Changes
	Name	
4-1-12	Jon Parker	Initial release. MOC #M2012498-001
8-23-13	Jon Parker	TAR guidelines for PPE in demarcated areas and identification of portable tanks. MOC # 20133073-001

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