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Propylene Oxide Handling

Completely Read this Guide prior to handling containers.

Do not use this product without fully reading and understanding the Label and the current Material Safety Data Sheet. Only properly trained personnel should handle Propylene Oxide.

Unloading Propylene Oxide Containers From Truck

1. Engine must be shut off unless using pump for lift-gate.
2. Handbrake must be set, wheels chocked, and precautions taken to prevent vehicle from moving.
3. Prevent all smoking, open flames, and combustion sources in or near the vehicle and the loading/unloading area.
4. If a leak is suspected, get emergency response advice immediately.
CHEMTREC phone: 1-800-424-9300.
5. Equipment that is likely to damage the container cannot be used. Containers should always be handled carefully to prevent damage.

Storage Areas

1. Propylene Oxide is classified as a flammable liquid. All electrical devices used in storage and processing areas must be designed to meet the applicable local electrical and fire codes.
2. Storage, unloading, and loading areas should be posted with "NO Smoking" signs.
3. Store containers upright in a cool, dry, well-ventilated area, away from sources of ignition.
4. Avoid storing containers in direct sunlight; preferably store in a roofed environment.

Handling of Propylene Oxide Containers

1. DO NOT use any non-rated electrical equipment (such as a forklift) in the immediate area if there may be any possibility that PO vapors are present.
2. DO NOT roll the containers or bang them together.
3. DO NOT use equipment that is capable of damaging the containers.
4. DO NOT mark the containers in any way. Use wire twist-on tags rather than adhesive labels.
5. There should always be an adequate source of ventilation.

Unloading Propylene Oxide Container Contents

1. Only use spark-proof tools (such as brass or beryllium-copper) to remove plugs or operate valves.
2. Container must be grounded/bonded to process system.
3. All piping and hoses should be made of stainless steel. Use double-braided, accordion-type hoses with valve adapter fittings attached for connection to valves.
4. Always inspect equipment prior to making connections. Ensure that all connections meet CGA requirements; are in good working order; and when connected to valves, provide a leak-free connection.
5. Only use dry nitrogen as an inert gas to unload the container contents and as an inerting gas for return of containers.
6. Heat generating conditions increase the explosion hazard & polymer formation.
7. All piping should be made of steel, nickel (clad), or stainless steel.
8. Check valves must be installed in the discharge line to prevent reactants from entering the container.
Teflon or Kalrez 1050 are materials used in PO service.
9. Only use dry nitrogen as an inert gas to unload containers.
10. The container is pressurized to 50 psig before leaving our facility. This is the normal working pressure for unloading a container. When unloading a container, maintain a minimum nitrogen pressure as per the Recommended Inerting Policy. **Do not exceed 50 psig.** The container has a liquid valve for accessing the product and is outfitted with a pressurization valve that has a relief valve that is set at 75 psig.

11. Fusible plugs on the container will melt at approximately 165° F, which will release propylene oxide from the container and create a fire hazard. The fusible plugs will vent any build up of pressure and remove the potential for an explosion in an over-heated situation. Avoid excessive heat.
12. Do NOT cross thread or over-tighten connections.
13. Close valves, purge all lines, and perform leak check prior to disconnecting container.

General Guide for Return of Empty Propylene Oxide Containers

1. Containers should contain pressure according to "Recommended Inerting Policy." Nitrogen pressure per the attached chart should be left in the container for return to shipper. Pressure in containers must never exceed 50 psig, and no air should be allowed to enter a container.
2. Containers should be clearly tagged with return address. Return container to address prescribed on the Valve Tag.
3. Applicable DOT labeling, placarding and shipping paper requirements must be met.
4. Prior to shipping, ensure valves are closed, and that valve plugs are installed. Inspect containers prior to return to ensure that they are properly marked and that there is no damage or leak.
5. Containers must be in proper condition for transportation, set upright and braced to prevent movement during transit, as per DOT regulations.
6. When returned, containers possess residual material, and are considered hazardous.

Recommended Inerting Policy

Chart of unloading temperature of Propylene Oxide as determined by outside ambient temperature and corresponding required pressure, using nitrogen as an inerting gas.

<u>TEMPERATURE (°F)</u>	<u>PRESSURE (PSIG)</u>
10	7
20	8
30	8
40	9
50	11
60	12
70	14
80	16
90	19
100	22
110	25
120	29

For Emergency Information: Call CHEMTREC at 1-800-424-9300

Due to hazardous properties of Propylene Oxide, we urge you to advise all personnel handling our containers of these guidelines.

This is only a guide. Always ensure that appropriate regulations for OSHA as well as other applicable Federal, State, and Local regulations are followed. Make available and be familiar with ARC's current MSDS and the North American Emergency Response Guidebook. Propylene Oxide, including residual product is a hazardous material: Users must comply with all DOT HAZMAT shipping and handling regulations.

ARC's current MSDS is available online at www.arcspecialtyproducts.com.