



## Methyl Chloride Handling & Storage Hazards

Due to its unique chemical and physical properties, methyl chloride is considered a highly hazardous material. Although not as toxic as chlorine, methyl chloride does exhibit similar hazards with respect to being a compressed gas but is also extremely reactive and flammable.

With methyl chloride being a compressed gas, it is imperative that a methyl chloride handling system be properly constructed, with appropriate expansion chambers or liquid thermal safety relief valves where required to assure that material trapped between closed valves does not result in a rupture and catastrophic failure of the handling system. **Due to the reactive nature of methyl chloride with certain metals such as aluminum & aluminum alloys, zinc, and magnesium, it is imperative that only proper materials of construction are utilized in a methyl chloride unloading, handling, and storage system.** Methyl chloride may explosively react with any aluminum (such as valves, couplers, piping, heat exchangers, etc.) in the handling system. Contact with incompatible substances may result in the generation of highly toxic phosgene gas. In the presence of moisture, methyl chloride hydrolyzes to form HCl, which in turn will attack most metals, releasing explosive hydrogen gas. Cast or ductile iron, brass or copper-bearing alloys should not be used in methyl chloride service; in the event of a small leak these materials become frangible due to auto-refrigeration of methyl chloride, which could result in a catastrophic failure of the methyl chloride handling system. Methyl chloride will attack some forms of plastic, rubber, and coatings, which could lead to a potential release of material if used in an unacceptable application, such as seals and gaskets.

Unlike chlorine, methyl chloride is a highly flammable material. When unloading and handling methyl chloride, all lines and containers

must be properly grounded. Only non-sparking (brass) tools should be used when working around a methyl chloride unloading and handling system. Likewise, brass Acme (hammer-type) fittings must be used for all unloading and vapor transfer lines. This is the only allowable use of brass in a methyl chloride handling system. Due to the flammability of the material, the methyl chloride handling and storage area should be under a fire suppression (sprinkler) system.

Methyl chloride is typically unloaded via a closed loop compressor or pump system, designed to evacuate all methyl chloride from the lines at the end of unloading. In addition, prior to unloading, all piping, including the unloading hose must be purged and pressure tested with nitrogen to ensure there are no leaks.

Due to the complexity of the methyl chloride unloading systems, and the possibility of an improperly designed system or the use of improper materials of construction, OxyChem requires that all new methyl chloride ship-to locations (and/or those that have not received a shipment from OxyChem for over one year) have an on-site assessment completed prior to the first shipment at that location.

### Further Information:

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