

Product Information



WORLDWIDE CAPABILITY IN ORGANIC PEROXIDES INITIATORS

LEAKS AND SPILLS

Mercaptan leaks are objectionable and could be dangerous. The odors are obnoxious to employees and those in the general vicinity of a leak. For these reasons, it is desirable to destroy the odor of escaping mercaptan as quickly as possible.

Large spills should be contained as soon as possible. Potential spill areas (such as storage and unloading sites) should be diked or connected to a sump from which the spilled material could be transferred to a closed container. Apply foam (water spray or fog) to decrease the escape of odorous and flammable vapors. Coat concrete dikes and unloading sites to minimize absorption by porous materials. Once the spilled material is removed, wash spill area with 5% bleach solution. **CAUTION: NEVER USE SOLID BLEACH, BECAUSE A VIOLENT REACTION CAN OCCUR.**

Small spills can be absorbed in dry earth, sand or an absorbing agent and removed to a closed container for approved and controlled disposal.

Drippings can be treated with bleach solution. The spill area should be covered with household bleach solution (5%) to eliminate fumes (and odor) of the residual material.

MASKING AGENTS

Masking agents should be used to counteract odors only when the odorant is present in non-toxic concentrations. It is extremely important to remember that MASKING AGENTS DO NOT DESTROY THE MERCAPTANS but merely counteract obnoxious odors. The toxic effects of higher concentrations of mercaptan are not reduced by masking agents.

ATOFINA MERCAPTANS

Methyl	n-Butyl	n-Dodecyl
Ethyl	t-Butyl	t-Dodecyl
Propyl	Cyclohexyl	Pennfloat® 3
Isopropyl	n-Hexyl	Pennfloat® S
	n-Octyl	Pennfloat® M
	t-Nonyl	Mercapto-2 Ethanol
	n-Decyl	

The data quoted herein refer to determinations and tests carried out in accordance with accepted laboratory practice. They are offered merely as a guide to the best use of Elf Atochem products, and to results typically obtainable, and are not to be construed as constituting or acknowledging any form of warranty or liability expressed or implied.

YOUR needs for organic chemicals drive what we do. Your requirements for everything from mercaptans to organic sulfides and related compounds set the target... and we are compelled to hit it. That's how we define our leadership role in thiochemicals. We understand that only by delivering exactly what you need – In both quality products and expert technical support – can we continue to be the leader. As you inquire about our many products and services, please continue to challenge us to deliver for you what we pledge to all of our customers: total and complete

SATISFACTION.

ATOFINA Mercaptans — Storage and Handling

GENERAL PRECAUTIONS

MERCAPTANS ARE FLAMMABLE. Flares used to burn vapors in order to reduce pressure on a storage tank should be situated as far away from the general storage area as practical. The flare should have a suitable flame arrestor. All potential sources of fire, flame and sparks in the immediate area should be sought out and eliminated. **NO SMOKING.**

Mercaptans may be irritating to the skin and especially to the eyes. However, no cases of permanent damage have been reported due to accidental short-term skin or eye exposure to humans. Mercaptans can be handled safely if appropriate precautions are taken.

Plastic gloves and chemical goggles should be worn to protect the skin and eyes when handling mercaptans. If mercaptan contacts the skin or eyes, flush the affected area immediately and thoroughly with water. In handling mercaptans, avoid spills and leaks of liquid or vapor. If liquid mercaptan is spilled or mercaptan vapors escape into the atmosphere, follow the procedures outlined on page 4 under Leaks and Spills.

AVOID PROLONGED BREATHING OF MERCAPTAN VAPORS. Although the odor of mercaptan will normally become extremely disagreeable before the vapors reach dangerous concentrations, the nose may become temporarily desensitized after exposure. A self-contained breather type mask is recommended for protection against anoxemia when working in areas of high vapor concentration or for prolonged exposure to lower concentrations of vapor.

To prevent accidental ignition of mercaptan vapors, employees working in handling and storage areas should not wear metal heel or toe plates on shoes. Nonsparking tools should be used when working on mercaptan equipment or containers.

MATERIALS OF CONSTRUCTION

Steel, stainless steel and copper-free steel alloys are the preferred materials of construction for mercaptan service. In particular, stainless steel should be used for any vessel or line which is to be opened and exposed to air frequently, and for equipment where minor corrosion could interfere with proper function. Carbon steel is the most economical material for tanks and piping. However, steel equipment should be passivated before putting it into service, to avoid discoloration of the product. Steel can be conditioned by allowing a small amount of mercaptan to stand in it for a period of time and subsequently keeping the equipment under a dry, inert atmosphere. The hazard in using iron or carbon steel is the formation of iron sulfides which, on exposure to air, can generate sufficient heat to ignite mercaptan vapors as well as other flammable materials. Any iron or carbon steel equipment in contact with mercaptans must be kept wet with water during disassembly or cleaning.

Do not use copper or copper-bearing alloys for mercaptan service. Mercaptans readily attack these metals and are contaminated by them.

Mercaptans are odorous; therefore, storage tanks should not be vented to the atmosphere. Venting should be to a flare or a scrubber to remove the mercaptan.

PUMPS

Because of the odor of mercaptans, it is suggested only hermetically sealed pumps be used. A model G Chempump or equivalent is recommended.



PIPE AND FITTINGS

Seamless steel pipe is recommended for mercaptan transfer lines. Forged welded fittings with flanges are recommended for pipe over one inch. For smaller sizes, 2,000 lb. forged steel threaded fittings may be used.

HOSES

Rubber Jacketed Convuluted Teflon Hose is recommended.

RELIEF VALVES

Relief valves should be either Farris type 2605 with stainless or aluminized steel spring; or Crosby JOS, Type A, full nozzle, disc type, closed bonnet carbon steel body, with 304 stainless steel trim and stainless or aluminized steel spring.

TRANSFER VALVES

WKM ball valves type B136-CS02-S1 with fluoroplastic seats and 316 stainless steel trim or equivalent are recommended.

LIQUID LEVEL GAUGES

Jerguson R-20 or Penberthy type reflex gauges with gauge glass valves, flanged connections and fluoroplastic gaskets are recommended.

RIGID CONNECTIONS

Welded or flanged joints should be used. For flanged joints use 150 lb. forged steel, raised face, weld neck or slip-on flanges.

GASKETS

Fluoroplastic and materials compatible with mercaptans should be used. For specific application, call Organic Chemicals Technical Service.

PIPE THREAD COMPOUND

Fluoroplastic tape or paste is recommended.

GAUGE VALVES

Jamesbury Type A22TT or A33TT are recommended. An armoured type gauge glass is preferred.

PRESSURE GAUGES

Crosby style ASO CI case 316 SS tube and socket or equivalent is recommended.

HANDLING MERCAPTANS IN DRUMS

It is recommended that mercaptan drums be kept cool before they are opened to prevent the vapor pressure from reaching high levels. In summer and in warm climates, the drums should be removed from exposure to sunlight. Counteract any leaks or spills in the manner explained on page four.

A useful device for transferring mercaptans from a drum to a reactor consists of a dip pipe assembly (See Figure A) equipped with a vapor-tight bung fitting. The dip pipe should reach to the bottom of the drum so that the drum may be thoroughly emptied by tilting it. The assembly may be purchased commercially — consult Organic Chemicals Technical Service for the name of a supplier. With this device an inert gas is used to apply pressure to the drums, forcing mercaptan through the dip pipe. The system should have a relief valve which will open at five pounds pressure to avoid rupture of the drum.

DRUM DISPOSAL

The most important factor in drum disposal is the same in all cases — THE DRUM MUST BE EMPTIED OF MERCAPTAN AS COMPLETELY AS POSSIBLE. If this is not done to the extent that no more than 1-2 ounces of mercaptan remain in the drum, no disposal treatment will be feasible. This emphasizes again the importance of using a suitable unloading device such as discussed above.

Elf Atochem has developed a technique for deodorizing mercaptan drums. For a copy of this procedure, contact Organic Chemicals Technical Service.



