



Environmental Solutions



Safe Handling, Use and Storage

Technical Bulletin

Background

Klozur[®] sodium persulfate is a stable, highly soluble, crystalline material, which upon activation is capable of oxidizing a broad range of recalcitrant compounds. When properly handled and stored, sodium persulfate does not present a serious health hazard. However, as with all oxidizing chemicals, Klozur[®] sodium persulfate requires careful attention to all aspects of handling and use. This bulletin covers the basic safe handling, use and storage practices for Klozur[®] sodium persulfate. For more information, please refer to the Material Safety Data Sheet (MSDS), which is available from FMC.

Personal Protective Equipment

Eye protection – wear chemical goggles or a face shield whenever splashing, spraying or eye contact is possible.

Respiratory – use dust respirator approved by NIOSH/MSA whenever exposure may exceed the established standard listed in the MSDS.

Hands – wear general purpose neoprene gloves

Clothing – wear ordinary work clothes with long sleeves and full-length pants.

Footwear – wear shoes with chemical resistant soles (neoprene)

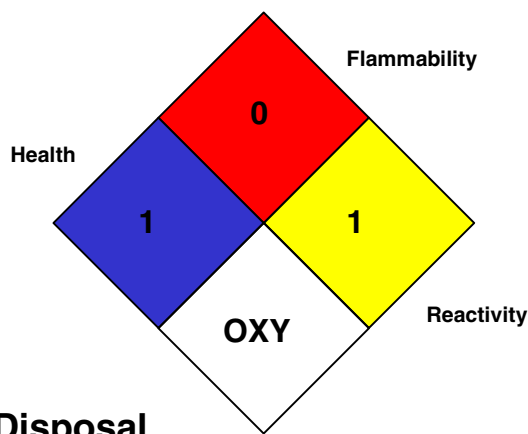
First Aid

Eye Contact – flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

Skin Contact – wash with plenty of soap and water. If irritation occurs and persists, obtain medical attention. Wash clothing before reuse.

Inhalation – get fresh air. If breathing difficulty or discomfort occurs, call a physician.

Ingestion – drink one to two glasses of water. Do not induce vomiting. Call a physician immediately.



Disposal

Klozur[®] persulfate crystals should never be discarded in trash bins. Contact with moisture, contaminants, and / or reducing agents can initiate a chemical reaction or persulfate decomposition. Persulfate crystals that become waste material are classified as hazardous waste, because they are oxidizers. Persulfate that is spilled on the floor, or otherwise contaminated, is best dissolved in copious amounts of water. Do not return spilled persulfate back to the original container.



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An acceptable disposal method for spent Klozur[®] persulfate solutions is to dilute with large quantities of water and dispose via a treatment system. Any disposal method must be in full accordance with all local, state and federal agencies.

Neutralization of Klozur[®] persulfate solutions may be performed, but must be done slowly with mild alkali (example: bicarbonate) with ample heat sink or cooling to prevent rapid temperature increases and gas release.

Materials Compatibility

304 and 316 stainless steel are recommended for mixing, conveyance and storage equipment (tanks, pipes, etc.) Other compatible materials include: polyvinyl chloride, polyethylene, Plexiglas[®], Teflon[®], chemical stoneware and glass.

Metals other than 304 and 316 stainless steel may cause persulfate decomposition, and in turn may be corroded by the persulfate. This is particularly true of Monel, copper, brass and iron. The pH of Klozur[®] persulfate solutions will decrease over time, and may drop below a pH of 2.

Storage

Klozur[®] persulfate should be kept in a cool, dry storage area. If stored in bulk, NFPA 430 guidelines should be followed.

Do not store or process Klozur[®] persulfate solutions in sealed or closed containers or vessels. Normal solution decomposition will release oxygen gas, which may over-pressurize a sealed container and cause rupture.

Decomposition Hazard of Klozur[®] Persulfate Crystals

Overheating or contamination of persulfate can lead to a self-accelerating decomposition. Persulfate decomposes to form solid sulfate salts and emit noxious fumes of SO_x. Oxygen and heat released from persulfate decomposition may induce combustion in flammable materials.

The only way to halt a decomposition event is to apply large quantities of water. One gallon of water per pound of decomposing material is recommended. Do not use less than a quart of water per pound of material, as this may intensify the decomposition.

Observe the following precautions to prevent decomposition:

Do not expose Klozur[®] persulfate or their containers to moisture. Moisture reduces the decomposition temperature.

Do not store Klozur[®] persulfate near incompatible materials: reducing agents, acids, bases, ammoniacal solutions, or alkaline cleaners.

Do not store near point sources of heat (steam pipes, electrical appliances, heating vents, gas flames radiant heaters, etc). Do not store in ambient temperatures above 113 °F or 45 °C

Do not return spilled or unused portions to the original container.

Do not use on hydrocarbon free product.