

# Potassium Permanganate

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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### SECTION 1: Identification

#### 1.1. Identification

Product form	: Substance
Substance name	: Potassium Permanganate
CAS-No.	: 7722-64-7
Product code	: CG6006
Formula	: KMnO <sub>4</sub>
Synonyms	: permanganate of potash / potassium salt permanganic acid

#### 1.2. Recommended use and restrictions on use

Use of the substance/mixture	: Oxidant Bleaching agent Reagent Disinfectant Deodorizer Algicide Dyestuff/pigment: component Medicine Laboratory chemical Food industry: additive Insecticide Germicide
Recommended use	: Laboratory chemicals
Restrictions on use	: Not for food, drug or household use

#### 1.3. Supplier

DAWN SCI  
121 Liberty street Metuchen, NJ 08840  
T: 732-902-6300, F : 973-802-1005  
www.dawnsci.com | care@dawnsci.com

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Oxidizing solids Category 2	H272	May intensify fire; oxidizer
Acute toxicity (oral) Category 4	H302	Harmful if swallowed
Hazardous to the aquatic environment - Acute Hazard Category 1	H400	Very toxic to aquatic life
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410	Very toxic to aquatic life with long lasting effects

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

##### GHS-US labeling

Hazard pictograms (GHS-US)	:	  
		GHS03      GHS07      GHS09

Signal word (GHS-US)	: Danger
Hazard statements (GHS-US)	: H272 - May intensify fire; oxidizer H302 - Harmful if swallowed

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Precautionary statements (GHS-US) : H410 - Very toxic to aquatic life with long lasting effects  
: P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking.  
P220 - Keep/Store away from clothing, combustible materials  
P221 - Take any precaution to avoid mixing with combustibles  
P264 - Wash exposed skin thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P273 - Avoid release to the environment.  
P280 - Wear protective gloves, protective clothing, eye protection, face protection.  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
P330 - If swallowed, rinse mouth  
P391 - Collect spillage.  
P501 - Dispose of contents/container to comply with local, state and federal regulations

### 2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None under normal conditions.

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Potassium Permanganate (Main constituent)	(CAS-No.) 7722-64-7	100	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Immediately consult a doctor/medical service. Call Poison Information Centre ([www.big.be/antigif.htm](http://www.big.be/antigif.htm)). Take the container/vomit to the doctor/hospital. Ingestion of large quantities: immediately to hospital.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : AFTER INHALATION OF DUST: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. EXPOSURE TO HIGH CONCENTRATIONS: Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung edema.

Symptoms/effects after skin contact : Tingling/irritation of the skin. May stain the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.

Symptoms/effects after eye contact : Corrosion of the eye tissue. Inflammation/damage of the eye tissue. ON CONTINUOUS EXPOSURE/CONTACT: Permanent eye damage.

Symptoms/effects after ingestion : Nausea. Vomiting. Diarrhoea. Irritation of the gastric/intestinal mucosa. AFTER ABSORPTION OF LARGE QUANTITIES: Possible esophageal perforation. Shock. Slowing heart action. Low arterial pressure. Possible laryngeal spasm/oedema. Respiratory difficulties.

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Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Respiratory difficulties. Impairment of the nervous system. Movement disturbances. Coordination disorders. Myasthenia. Tremor. Paralysis. Cramps/uncontrolled muscular contractions. Impaired memory. Emotional instability.

### 4.3. Immediate medical attention and special treatment, if necessary

No additional information available

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Adapt extinguishing media to the environment. Preferably: quantities of water.  
Unsuitable extinguishing media : No unsuitable extinguishing media known.

### 5.2. Specific hazards arising from the chemical

Fire hazard : DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Promotes combustion. Reactions involving a fire hazard: see "Reactivity Hazard".  
Explosion hazard : INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".  
Reactivity : Decomposes on exposure to temperature rise: oxidation which increases fire hazard. Reacts with combustible materials: risk of spontaneous ignition. Violent to explosive reaction with (some) acids: release of toxic and corrosive gases/vapours. Reacts violently with many compounds e.g.: with organic material and with (strong) reducers. With (some) metals. With (increased) risk of fire/explosion.

### 5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation.  
Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.  
Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Protective equipment : Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit. Reactivity hazard: compressed air/oxygen apparatus. Reactivity hazard: gas-tight suit. See "Material-Handling" to select protective clothing.  
Emergency procedures : Mark the danger area. Prevent dust cloud formation. No naked flames. Keep containers closed. Wash contaminated clothes. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation.  
Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

#### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Do not breathe dust.  
Emergency procedures : If a major spill occurs, all personnel should be immediately evacuated and the area ventilated. Stop release. Ventilate area.

### 6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

### 6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. If reacting: dilute toxic gas/vapour with water spray. Take account of toxic/corrosive precipitation water.  
Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Spill must not return in its original container. See "Material-handling" for suitable container materials. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

### 6.4. Reference to other sections

No additional information available

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Keep away from naked flames/heat. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

#### 7.2. Conditions for safe storage, including any incompatibilities

Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.  
Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: combustible materials. reducing agents. strong acids. metal powders. cellulosic materials. organic materials. alcohols. peroxides.  
Storage area : Store at ambient temperature. Keep out of direct sunlight. Store in a dry area. Fireproof storeroom. Unauthorized persons are not admitted. Keep only in the original container. Store only in a limited quantity. Meet the legal requirements.  
Special rules on packaging : SPECIAL REQUIREMENTS: closing. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.  
Packaging materials : SUITABLE MATERIAL: steel. aluminium. glass. stoneware/porcelain. MATERIAL TO AVOID: wood. cellulosic material.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Potassium Permanganate (7722-64-7)		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (Manganese, inorganic compounds, as Mn; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Inhalable fraction)
OSHA	OSHA PEL (Ceiling) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> as Mn
IDLH	US IDLH (mg/m <sup>3</sup> )	500 mg/m <sup>3</sup> as Mn
NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> as Mn
NIOSH	NIOSH REL (ceiling) (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> as Mn

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

#### 8.3. Individual protection measures/Personal protective equipment

##### Personal protective equipment:

Gloves. Safety glasses. Dust production: dust mask with filter type P3.

##### Materials for protective clothing:

GIVE EXCELLENT RESISTANCE: polyethylene. GIVE GOOD RESISTANCE: butyl rubber. PVC. polyethylene/ethylenevinylalcohol

##### Hand protection:

Gloves

##### Eye protection:

Face shield. In case of dust production: protective goggles

##### Skin and body protection:

Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing

##### Respiratory protection:

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Dust production: dust mask with filter type P3.  
High dust production: self-contained breathing apparatus

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid. Crystalline powder.
Color	: Dark violet-brown
Odor	: Odorless
Odor threshold	: No data available
pH	: 7.0 - 8.5 (1.6 %)
pH solution	: 1.6 %
Melting point	: > 240 °C
Freezing point	: No data available
Boiling point	: Not applicable
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: < 0.1 hPa (20 °C)
Relative vapor density at 20 °C	: No data available
Relative density	: 2.7
Specific gravity / density	: 2700 kg/m <sup>3</sup>
Molecular mass	: 158.03 g/mol
Solubility	: Moderately soluble in water. Substance sinks in water. Soluble in ethanol. Soluble in methanol. Soluble in acetone. Soluble in acetic acid. Soluble in sulfuric acid. Soluble in pyridine. Water: 6.4 g/100ml
Log Pow	: -1.73 (Estimated value)
Auto-ignition temperature	: Not applicable
Decomposition temperature	: > 240 °C
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: May intensify fire; oxidiser.

#### 9.2. Other information

Minimum ignition energy	: Not applicable
SADT	: Not applicable
VOC content	: Not applicable
Other properties	: Opaque. Substance has basic reaction.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Decomposes on exposure to temperature rise: oxidation which increases fire hazard. Reacts with combustible materials: risk of spontaneous ignition. Violent to explosive reaction with (some) acids: release of toxic and corrosive gases/vapours. Reacts violently with many compounds e.g.: with organic material and with (strong) reducers. With (some) metals. With (increased) risk of fire/explosion.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

Reacts exothermically with combustible materials: (increased) risk of fire.

#### 10.4. Conditions to avoid

Incompatible materials.

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### 10.5. Incompatible materials

Strong reducing agents. Organic compounds. combustible materials. metals.

### 10.6. Hazardous decomposition products

manganese.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Likely routes of exposure : Skin and eye contact; Inhalation

Acute toxicity : Oral: Harmful if swallowed.

Potassium Permanganate (7722-64-7)	
LD50 oral rat	1090 mg/kg (Rat)
ATE US (oral)	1090 mg/kg body weight
Skin corrosion/irritation	: Not classified pH: 7.0 - 8.5 (1.6 %)
Serious eye damage/irritation	: Not classified pH: 7.0 - 8.5 (1.6 %)
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity – single exposure	: Not classified
Specific target organ toxicity – repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: AFTER INHALATION OF DUST: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. EXPOSURE TO HIGH CONCENTRATIONS: Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung edema.
Symptoms/effects after skin contact	: Tingling/irritation of the skin. May stain the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue. Inflammation/damage of the eye tissue. ON CONTINUOUS EXPOSURE/CONTACT: Permanent eye damage.
Symptoms/effects after ingestion	: Nausea. Vomiting. Diarrhoea. Irritation of the gastric/intestinal mucosa. AFTER ABSORPTION OF LARGE QUANTITIES: Possible esophageal perforation. Shock. Slowing heart action. Low arterial pressure. Possible laryngeal spasm/oedema. Respiratory difficulties.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Respiratory difficulties. Impairment of the nervous system. Movement disturbances. Coordination disorders. Myasthenia. Tremor. Paralysis. Cramps/uncontrolled muscular contractions. Impaired memory. Emotional instability.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Dangerous for the environment.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). TA-Luft Klasse 5.2.2/III.

Ecology - water : Severe water pollutant (surface water). Ground water pollutant. Toxic to fishes. Very toxic to invertebrates (Daphnia).

Potassium Permanganate (7722-64-7)	
EC50 Daphnia 1	0.235 mg/l (EC50; 24 h)
LC50 fish 2	1.22 mg/l (LC50; 96 h)
Threshold limit algae 1	10 mg/l (EC50; 4 h)

### 12.2. Persistence and degradability

Potassium Permanganate (7722-64-7)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	

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Potassium Permanganate (7722-64-7)	
Chemical oxygen demand (COD)	
ThOD	

### 12.3. Bioaccumulative potential

Potassium Permanganate (7722-64-7)	
Log Pow	-1.73 (Estimated value)
Bioaccumulative potential	Bioaccumulation: not applicable.

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

- Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Immobilize the toxic or harmful components. Remove to an authorized dump (Class I).
- Additional information : LWCA (the Netherlands): KGA category 06. Hazardous waste according to Directive 2008/98/EC.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

- Transport document description : UN1490 Potassium permanganate, 5.1, II
- UN-No.(DOT) : UN1490
- Proper Shipping Name (DOT) : Potassium permanganate
- Transport hazard class(es) (DOT) : 5.1 - Class 5.1 - Oxidizer 49 CFR 173.128
- Packing group (DOT) : II - Medium Danger
- Hazard labels (DOT) : 5.1 - Oxidizer



- Dangerous for the environment : Yes
- Marine pollutant : Yes



- DOT Packaging Non Bulk (49 CFR 173.xxx) : 212
- DOT Packaging Bulk (49 CFR 173.xxx) : 240

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DOT Special Provisions (49 CFR 172.102)	: IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2). IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle. IP4 - Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner. T3 - 2.65 178.274(d)(2) Normal..... 178.275(d)(2) TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 152
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 5 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 25 kg
DOT Vessel Stowage Location	: D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
DOT Vessel Stowage Other	: 56 - Stow "separated from" ammonium compounds, 58 - Stow "separated from" cyanides
Other information	: No supplementary information available.

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Potassium Permanganate (7722-64-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Subject to reporting requirements of United States SARA Section 313

RQ (Reportable quantity, section 304 of EPA's List of Lists)	100 lb
SARA Section 311/312 Hazard Classes	Reactive hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Potassium Permanganate	CAS-No. 7722-64-7	100%
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### 15.2. International regulations

#### CANADA

#### Potassium Permanganate (7722-64-7)

Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

No additional information available

#### National regulations

#### Potassium Permanganate (7722-64-7)

Listed on the Canadian IDL (Ingredient Disclosure List)

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

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### SECTION 16: Other information

Revision date :

Full text of H-phrases: see section 16:

H272	May intensify fire; oxidizer
H302	Harmful if swallowed
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

NFPA health hazard

: 1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard

: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.

NFPA specific hazard

: OX - Materials that possess oxidizing properties.

Hazard Rating

Health

: 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability

: 0 Minimal Hazard - Materials that will not burn

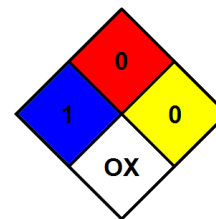
Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection

: F

F - Safety glasses, Gloves, Synthetic apron, Dust respirator



SDS US Dawnski

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