"OXONE" MONOPERSULFATE COMPOUND

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification
"OXONE" is a registered trademark of DuPont.

Corporate MSDS Number  DU005614
CAS Number  70693-62-8
CAS Name  POTASSIUM HYDROGEN PEROXYMONOSULFATE SULFATE
Grade  TECHNICAL

Tradenames and Synonyms
POTASSIUM PEROXYMONOSULFATE

Company Identification
MANUFACTURER/DISTRIBUTOR
DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS
Product Information  1-800-441-9442
Transport Emergency  CHEMTREC: 1-800-424-9300
Medical Emergency  1-800-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTASSIUM PEROXYMONOSULFATE</td>
<td>10058-23-8</td>
<td>43</td>
</tr>
<tr>
<td>POTASSIUM BISULFATE</td>
<td>7646-93-7</td>
<td>23</td>
</tr>
<tr>
<td>POTASSIUM SULFATE</td>
<td>7778-80-5</td>
<td>32</td>
</tr>
<tr>
<td>MAGNESIUM CARBONATE</td>
<td>546-93-0</td>
<td>2</td>
</tr>
</tbody>
</table>

(Continued)
HAZARDS IDENTIFICATION

Potential Health Effects

Causes skin, eye, nose, and throat irritation. May cause allergic skin reactions at high concentrations in sensitive individuals. Ingestion may cause inflammation and damage to the lining of the stomach, resulting in bleeding.

HUMAN HEALTH EFFECTS:

Skin contact may cause skin irritation with discomfort or rash. Allergic skin reactions were observed at high concentrations, but at lower concentrations of 12 ppm and 150 ppm, no allergic reactions were noted. Eye contact may cause eye irritation with discomfort, tearing, or blurring of vision. Inhalation may cause irritation of the upper respiratory passages with coughing and discomfort. Ingestion may cause gastritis possibly progressing to necrosis or hemorrhage.

Individuals with preexisting diseases of the skin or gastrointestinal tract may have increased susceptibility to the toxicity of excessive exposures.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

# First Aid

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

In case of contact, immediately wash skin with soap and water. Wash contaminated clothing before reuse.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.
FIRE FIGHTING MEASURES

Flammable Properties
Will not burn.

Fire and Explosion Hazards:

Storage of large masses of "OXONE" can trap heat and lead to ignition of paper bags. Grinding or intensive mixing may cause ignition of oxidizable material present.

Extinguishing Media
Water.

Fire Fighting Instructions
None.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)
NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures
Sweep up. Flush area with low pressure water.

HANDLING AND STORAGE

Handling (Personnel)
Avoid breathing dust. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling.

Storage
Store in a cool, dry, well-ventilated area. Stack on pallets providing air space; closely stacked bags should not exceed a 4 ft. (1.2 m) cube. Keep packages dry. Do not store with combustible materials.

EXPOSURE CONTROLS/PERSOAL PROTECTION

Engineering Controls
Use sufficient ventilation to keep employee exposure below recommended limits.

Personal Protective Equipment
EYE/FACE PROTECTION

Wear safety glasses. Wear coverall chemical splash goggles and face shield when the possibility exists for eye or face contact from airborne material.

RESPIRATORS
EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)

A NIOSH/MSHA approved air-purifying respirator with a
dust/mist cartridge or canister may be permissible under
certain circumstances where airborne concentrations are
expected to exceed exposure limits. Protection provided by
air purifying respirators is limited. Use a positive
pressure air supplied respirator if here is any potential
for an uncontrolled release, exposure levels are not known,
or any other circumstances where air purifying respirators
may not provide adequate protection.

PROTECTIVE CLOTHING

Wear impervious clothing, such as gloves, apron, boots or
whole bodysuit, made of rubber, as appropriate. Leather
gloves may be used when handling dry material.

Exposure Guidelines

<table>
<thead>
<tr>
<th>Exposure Limits</th>
<th>Monopersulfate Compound</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (OSHA)</td>
<td>Particulates (Not Otherwise Regulated)</td>
</tr>
<tr>
<td></td>
<td>15 mg/m³, 8 Hr. TWA, total dust</td>
</tr>
<tr>
<td></td>
<td>5 mg/m³, 8 Hr. TWA, respirable dust</td>
</tr>
<tr>
<td>TLV (ACGIH)</td>
<td>None Established</td>
</tr>
<tr>
<td>AEL * (Du Pont)</td>
<td>1 mg/m³, 8 Hr. TWA</td>
</tr>
</tbody>
</table>

Other Applicable Exposure Limits

<table>
<thead>
<tr>
<th>Potassium Sulfate</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (OSHA)</td>
</tr>
<tr>
<td>TLV (ACGIH)</td>
</tr>
<tr>
<td>AEL * (Du Pont)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Magnesium Carbonate</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (OSHA)</td>
</tr>
<tr>
<td>TLV (ACGIH)</td>
</tr>
<tr>
<td>AEL * (Du Pont)</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

* AEL is Du Pont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical Data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
<td>@ 760 mm Hg Decomposes</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Nil</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not volatile</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Decomposes</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>(Butyl acetate = 1)</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>25.6 WT% @ 20°C (68°F)</td>
</tr>
<tr>
<td>pH</td>
<td>1% solution = 2.3; 3% solution = 2.0</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Form</td>
<td>Granular; free flowing solid</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.1-1.4</td>
</tr>
</tbody>
</table>
STABILITY AND REACTIVITY

Chemical Stability
Stable.

Incompatibility with Other Materials
The mixture of "OXONE" with compounds containing halides or active halogens can cause release of the respective halogen if moisture is present. For example, mixture with sodium dichloroisocyanuride or with sodium chloride can cause release of chlorine gas; mixture with cyanides can cause release of hydrogen cyanide gas; and heavy metal salts such as those of cobalt, nickel, copper, or manganese cause the evolution of oxygen.

Decomposition
Releases oxygen gas.

Polymerization
Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data
Inhalation 4-hour LC50: >5 mg/l in rats
Skin absorption LD50: >11,000 mg/kg in rabbits
Oral LD50: 2,000 mg/kg in rats

The compound is a severe skin and eye irritant, but is not a skin sensitizer in laboratory animals. Single inhalation exposures produced nonspecific effects such as weight loss and irritation. Repeated inhalation exposures produced eye irritation and reversible corneal damage. By ingestion, the administration of large single doses produced nonspecific effects such as weight loss and irritation as well as gastric ulceration, necrosis, and hemorrhage. The compound does not produce genetic damage in bacterial cell cultures.

ECOLOGICAL INFORMATION

# Ecotoxicological Information
Aquatic Toxicity

Potassium Sulfate
96-hour Tlm, bluegill sunfish: 3,500 mg/L

Magnesium Carbonate
96-hour LC50, species unidentified: >1,000 ppm

(Continued)
DISPOSAL CONSIDERATIONS

Waste Disposal
Comply with Federal, State, and local regulations. If approved, flush to sewer or waste treatment plant. Large quantities should be neutralized with soda ash.

TRANSPORTATION INFORMATION

Shipping Information
NOT REGULATED AS A HAZARDOUS MATERIAL BY DOT OR IMO.

Shipping Containers

Multiwall Bags
Fiber Pack Drums

REGULATORY INFORMATION

U.S. Federal Regulations
TSCA Inventory Status Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : No
Reactivity : No
Pressure : No

LISTS:

SARA Extremely Hazardous Substance - No
CERCLA Hazardous Material - No
SARA Toxic Chemical - No

CANADIAN WHMIS CLASSIFICATION:

D2B

OTHER INFORMATION

NFPA, NPCA-HMIS
NPCA-HMIS Rating
Health 2
Flammability 0
Reactivity 1

Personal Protection rating to be supplied by user depending on use conditions.

Additional Information
For further information, see DuPont "OXONE" Monopersulfate Compound Data Sheet.

(Continued)
The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS

DuPont Chemicals
Engineering & Product Safety
P. O. Box 80709, Chestnut Run
Wilmington, DE 19880-0709

Telephone
302-999-4946

# Indicates updated section.

End of MSDS