1. PRODUCT AND COMPANY IDENTIFICATION

Formulator: Gowan Company  
P.O. Box 5569  
Yuma, Arizona 85366-5569  
(928) 783-8844  

Emergency Phone: (928) 783-3803  
For 24-Hour Emergency Assistance (Spill, Leak, Fire, or Exposure), Call CHEMTREC®:  
Inside the U.S.: (800) 424-9300  
Outside the U.S.: (703) 527-3887  
(888) 478-0798  

For MEDICAL Emergency:  
(928) 783-3803  
Inside the U.S.: (800) 424-9300  
Outside the U.S.: (703) 527-3887  
(888) 478-0798  

Product: MSR® Spray Concentrate  
EPA Signal Word: Danger-Poison  
EPA Registration No.: 10163-220  
Active Ingredient: Oxydemeton-methyl (25%)  
CAS No.: 301-12-2  
Chemical Name: S-[2-(Ethylsulfinyl)ethyl] O,O-dimethyl phosphorothioate  
Chemical Class: Organophosphorous pesticide  

2. HAZARDS IDENTIFICATION

Physical Properties
- **Appearance:** Clear, colorless to amber liquid  
- **Odor:** Sulfurous odor  

Symptoms of Acute Exposure  
Inhalation, dermal absorption or ingestion of this material may result in systemic intoxication due to inhibition of the enzyme cholinesterase. The sequence of development of systemic effects varies with the route of entry, and the onset of symptoms may be delayed up to 12 hours. First symptoms of poisoning may be nausea, increased salivation and lachrymation, blurred vision and constricted pupils. Other symptoms of systemic poisoning include vomiting, diarrhea, abdominal cramping, dizziness and sweating. After inhalation, respiratory symptoms including tightness of chest, wheezing, and laryngeal spasms may be pronounced at first. If the poisoning is severe, then symptoms of weakness, muscle twitching, confusion, ataxia, slurred speech, convulsions, low blood pressure, cardiac irregularities, loss of reflexes and coma may occur. In extreme cases, death may occur due to a combination of factors such as respiratory arrest, paralysis of respiratory muscles or intense bronchoconstriction. Complete symptomatic recovery from sublethal poisoning usually occurs within one week once the source of exposure is completely removed. The aromatic hydrocarbon solvents in this product can be irritating to the eyes, nose and throat. In high concentration, they may cause central nervous system depression and narcosis characterized by nausea, lightheadedness and dizziness from overexposure by inhalation.

Symptoms of Acute Exposure  
Cholinesterase inhibition sometimes persists for 2-6 weeks; thus, repeated exposure to small amounts of MSR may result in an unexpected cholinesterase depression causing symptoms such as malaise, weakness, and anorexia that resemble other illnesses such as influenza. Exposure to a concentration that would not have produced symptoms in a person that was not previously exposed may produce severe symptoms of cholinesterase inhibition in a previously exposed person. Repeated skin contact may result in defatting of the skin by the solvents in the product, which can lead to redness and irritation of the skin. Chronic overexposure to these solvent components may cause mucous membrane irritation, nausea, headache, loss of appetite, weakness and alcohol intolerance. A rat reproduction study revealed adverse effects on the testes and overall reproductive performance when high dosages were administered. The relevance of these findings for humans is unknown.

Medical Conditions Likely to be Aggravated by Exposure  
No specific medical conditions are known which may be aggravated by exposure to the active ingredient in this product; however, any disease, medication, or prior exposure, which reduces normal cholinesterase activity may increase susceptibility to the toxic effects of the active ingredient. In addition, certain pre-existing skin, liver, and kidney disorders may be aggravated by exposure to this product due to solvent components.
2. HAZARDS IDENTIFICATION - continued

Primary Routes of Exposure
Dermal absorption and inhalation are the primary routes of entry. This product can be absorbed through the skin.

Hazardous Decomposition Products
CO, P_2O_5, SO_2

Unusual Fire, Explosion, and Reactivity Hazards
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>OSHA – PEL</th>
<th>ACGIH – TLV</th>
<th>OTHER</th>
<th>NTP/IARC/OSHA CARCINOGEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxydemeton-methyl (25%)</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>No</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone (40-50%) CAS# 108-10-1</td>
<td>50 ppm</td>
<td>50 ppm</td>
<td>Not established</td>
<td>No</td>
</tr>
<tr>
<td>Xylenes (1-5%) CAS# 1330-20-7</td>
<td>100 ppm</td>
<td>100 ppm</td>
<td>Not established</td>
<td>No</td>
</tr>
<tr>
<td>Ethylbenzene (0.1-1%) CAS# 100-41-4</td>
<td>100 ppm</td>
<td>100 ppm</td>
<td>Not established</td>
<td>No</td>
</tr>
<tr>
<td>Trimethylbenzenes (10-15%) CAS# 25551-13-7</td>
<td>50 ppm</td>
<td>50 ppm</td>
<td>Not established</td>
<td>No</td>
</tr>
</tbody>
</table>

Only the identities of the active ingredient(s) and any hazardous inert ingredients are listed. Specific information on all of this product's ingredients can be obtained by the treating medical professional or spill emergency responder for the management of exposures, spills, or safety assessments.

4. FIRST AID MEASURES

ORGANOPHOSPHATE

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.
- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.
- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
- Call a poison control center or doctor for further treatment advice.
- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor
- Do not give anything by mouth to an unconscious person.

HOT LINE NUMBER
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-888-478-0798 for emergency medical treatment information.

NOTE TO PHYSICIAN
This product is an organophosphate insecticide. If symptoms of cholinesterase inhibition are present, atropine sulfate by injection is antidotal. 2-PAM is also antidotal and may be administered, but only in conjunction with atropine. Probable mucosal damage may contraindicate the use of gastric lavage.
5. FIRE FIGHTING MEASURES

Flashpoint (test method): 69°F (TCC), 78°F (TOC)
Flammable Limits (% in air): upper explosive limit (UEL): Not established
lower explosive limit (LEL): 1.2%

Appropriate Extinguishing Media
Use water spray, CO₂, foam, and dry chemical.

Fire Fighting Guidance
Keep out of smoke. Cool exposed containers with water spray. Fight fire from upwind position. Use self-contained breathing equipment. Contain runoff by diking to prevent entry into sewers or waterways. Equipment or materials involved in pesticide fires may become contaminated.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spills or Leaks
Handle an open container in a manner as to prevent spillage. If container is leaking invert to prevent leakage. If the container is leaking or material spilled for any reason or cause, carefully dam up spilled material to prevent run-off. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type of compounds and dispose of as directed for pesticides above. In spill or leak incidents, keep unauthorized people away. Avoid skin contact. Scrub contaminated area with detergent and bleach solution. Repeat. Rinse with water. Do not allow material to enter streams, sewers, or other waterways.

7. HANDLING AND STORAGE

May be harmful if swallowed, inhaled or absorbed through the skin. Avoid breathing spray mist. Avoid contact with skin, eyes, or clothing. Do not contaminate water, food or feed by storage or disposal. Store in the original container and keep closed. Store containers in a cool, dry place.

Precautions in Storing
DO NOT contaminate water, food or feed by storage or disposal. Do not store next to herbicides. For LiquiPac® product, do not expose container or contents to moisture, sunlight, or extremes of heat or cold. Store water-soluble bags in unopened outer protective package in the shipping container.

Storage
Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store away from heat and open flame. Store in original container and out of the reach of children, preferably in a locked storage area.

8. EXPOSURE CONTROLS/PERSOAL PROTECTION

Engineering Control
Maintain exposure levels below the applicable exposure limits through the use of general and local exhaust ventilation.

Eye/Face
Avoid eye contact. Protective eyewear is required.

Skin Protection
Applicators and other handlers must wear coveralls worn over long-sleeved shirt and long pants, chemical-resistant gloves such as barrier laminate or butyl rubber or nitrile rubber or Viton, chemical-resistant footwear plus socks, chemical-resistant headgear for overhead exposure, and a chemical-resistant apron when cleaning equipment, mixing, or loading.

Respiratory Protection
For exposure in enclosed areas, applicators and other handlers must wear a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides, or a canister approved for pesticides. For exposure outdoors, applicators and other handlers must wear a dust/mist-filtering respirator.

Additional Protection Information
Plasma and/or red blood cell cholinesterase activity can be used to detect excessive absorption of MSR (oxydemeton-methyl). It is preferable to establish a pre-exposure baseline value for best comparisons. Metabolites may also be detected in the blood or urine. If significant cholinesterase depression occurs, no further exposure should be allowed until cholinesterase values return to normal. Clean water should be available for washing in case of eye or skin contamination. Educate employees in the safe use of the product. Follow all label instructions and precautionary statements. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment.
Applicators/Handlers
Applicators and other handlers must wear coveralls worn over long-sleeved shirt and
long pants, chemical-resistant gloves such as barrier laminate or butyl rubber or
nitrile rubber or Viton, chemical-resistant footwear plus socks, chemical-resistant
headgear for overhead exposure, and a chemical-resistant apron when cleaning
equipment, mixing, or loading.

User Safety
Recommendations:
Users should wash hands before eating, drinking, chewing gum, using tobacco or
using the toilet. Remove clothing immediately if pesticide gets inside. Then wash
thoroughly and put on clean clothing. Remove PPE immediately after handling this
product. Wash the outside of gloves before removing. As soon as possible, wash
thoroughly and change into clean clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear, colorless to amber liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Sulfurous odor</td>
</tr>
<tr>
<td>Melting Point</td>
<td>0°F</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity/Density</td>
<td>0.95-0.96 @20°C / 7.93-8.00 lbs./gal</td>
</tr>
<tr>
<td>Solubility in H₂O</td>
<td>Oxydemeton-methyl Miscible</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Oxydemeton-methyl 2.8x10⁻⁵ mm Hg @ 20°C</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under normal storage conditions for at least 36 months.</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur</td>
</tr>
<tr>
<td>Decomposition Products</td>
<td>None known</td>
</tr>
<tr>
<td>Hazardous Mixtures</td>
<td>Avoid oxidizing agents</td>
</tr>
<tr>
<td>Conditions To Avoid</td>
<td>Sustained temperature above 104°F (40°C). Avoid exposure to strong oxidizing agents. Subject to hydrolysis. Unstable in alkaline media.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>Acute Oral LD₅₀ (rat-female): &gt;138 mg/kg body weight</td>
</tr>
<tr>
<td></td>
<td>Acute Oral LD₅₀ (rat-male): &gt;125 mg/kg body weight</td>
</tr>
<tr>
<td>Dermal</td>
<td>Acute Dermal LD₅₀ (rabbit-male): &gt;359 mg/kg body weight</td>
</tr>
<tr>
<td></td>
<td>Acute Dermal LD₅₀ (rabbit-female): &gt;253 mg/kg body weight</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Acute Inhalation LC₅₀ (rat-male): &gt;0.73 mg/L air – 1 hour</td>
</tr>
<tr>
<td></td>
<td>Acute Inhalation LC₅₀ (rat-female): &gt;0.60 mg/L air – 1 hour</td>
</tr>
<tr>
<td>Eye Contact</td>
<td>Mild irritant</td>
</tr>
<tr>
<td>Skin Contact</td>
<td>Slightly irritating</td>
</tr>
<tr>
<td>Skin Sensitizer</td>
<td>Not expected to be a skin sensitizer</td>
</tr>
</tbody>
</table>

Carcinogenic Potential
None
12.  ECOLOGICAL INFORMATION

Summary of Effects
Oxydemeton-methyl
   This pesticide is toxic to fish and wildlife. For terrestrial uses, do not apply directly to water, to areas where
   surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by
   cleaning of equipment or disposal of wastes. Drift and runoff from treated areas may be hazardous to aquatic
   organisms in adjacent aquatic sites. This product is toxic to bees exposed to direct treatment. Do not apply
   this product while bees are actively visiting the treatment area.

Other Environmental Information Use Precautions
Not available

13.  DISPOSAL CONSIDERATION

Pesticide Disposal
Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal
law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or
Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for
 guidance.

Container Disposal
For plastic containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and
dispose of in a sanitary landfill, or incineration or, if allowed by State and local authorities, by burning. If burned,
stay out of smoke. For LiquiPac product, completely empty container into application equipment. Then dispose of
empty container in a sanitary landfill or by incineration or, if allowed by State and local authorities, by burning. If
burned, stay out of smoke.

14.  TRANSPORT INFORMATION

DOT Classification
UN 2784, Organophosphorus Pesticide, Liquid, Flammable, Toxic, 3 (6.1), PG II

International Maritime Organization
UN 2784, Organophosphorus Pesticide, Liquid, Flammable, Toxic, 3 (6.1), PG II

International Civil Aviation Organization
UN 2784, Organophosphorus Pesticide, Liquid, Flammable, Toxic, 3 (6.1), PG II

15.  REGULATORY INFORMATION

SARA Title III Classification
Section 302/304: Not applicable
Section 311/312: Immediate (acute) health hazard
     Delayed (chronic) health hazard
     Fire hazard
Section 313 chemical(s): Oxydemeton-Methyl CAS #:301-12-2 (25%)
     Methyl Isobutyl Ketone CAS #:108-40-1 (40-50%)
     Xylenes CAS #:1330-20-7 (1-5%)
     Ethylbenzene CAS #:100-41-4 (0.1-1%)

Proposition 65
This product contains a chemical known to the state of California to cause cancer or other reproductive harm.

CERCLA Reportable Quantity (RQ)
250 gal Product (100 lbs. Xylene)

RCRA Classification
Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material
containing the product or derived from the product should be classified as a hazardous waste.

TSCA Status
Exempt from TSCA
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA Hazard Ratings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health:</td>
<td>3</td>
</tr>
<tr>
<td>Flammability:</td>
<td>3</td>
</tr>
<tr>
<td>Reactivity:</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0 Least</td>
</tr>
<tr>
<td></td>
<td>1 Slight</td>
</tr>
<tr>
<td></td>
<td>2 Moderate</td>
</tr>
<tr>
<td></td>
<td>3 High</td>
</tr>
<tr>
<td></td>
<td>4 Severe</td>
</tr>
</tbody>
</table>

Notice: The information and recommendations contained herein are provided in good faith and are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information herein.

Prepared By:
Gowan Company
(928) 783-8844

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