



MATERIAL SAFETY DATA SHEET

MSR[®]

Product: Systemic Insecticide

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:

1. CHEMICAL IDENTIFICATION

Product: **MSR Spray Concentrate**

EPA Signal Word: Warning 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. COMPOSITION/INFORMATION ON INGREDIENTS

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

3. 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,

3. HAZARDS IDENTIFICATION (Continued)

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.

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, P₂O₅, SO₂

Unusual Fire, Explosion, and Reactivity Hazards

Not applicable

4. FIRST AID MEASURES

If poisoning is suspected, immediately contact a physician, the nearest hospital, or the nearest Poison Control Center. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Ingestion: Vomiting should be induced. Administer water freely and induce vomiting by giving one dose (½ oz. or 15 ml.) of syrup of ipecac. If vomiting does not occur within 10-20 minutes, administer second dose. If syrup of ipecac is not available, induce vomiting by sticking finger down throat. Repeat until vomit fluid is clear. Never give anything by mouth to an unconscious person. Professional medical assistance should be secured immediately. If poisoning occurs, obtain prompt medical aid.

Eye Contact: Immediately flush eyes with plenty of water. Get medical attention if irritation persists.

Note to Physician

May cause cholinesterase depression. Atropine sulfate is antidotal. 2-PAM is also antidotal and may be administered in conjunction with atropine. Administer atropine sulfate in large therapeutic doses. Repeat as necessary to the point of tolerance. Compound inhibits cholinesterase, resulting in stimulation of the central nervous system, the parasympathetic nervous system and the somatic motor nerves. Do not give morphine. Watch for pulmonary edema, which may develop in serious cases of poisoning even after 24-48 hours. At first sign of pulmonary edema, the patient should be placed in an oxygen tent and treated symptomatically.

FOR MEDICAL EMERGENCIES INVOLVING THIS PRODUCT, CALL TOLL FREE: (888) 478-0798

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/PERSONAL PROTECTION

Engineering Control	Maintain exposure levels below the applicable exposure limits through the use of general and local exhaust ventilation.
Eye/Face Skin Protection	Avoid eye contact. Protective eyewear is required. 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)

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 (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

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

Appearance: Clear, colorless to amber liquid
Odor: Sulfurous odor
Melting Point: 0°F
Boiling Point: Not applicable
**Specific Gravity/
Density:** 0.95-0.96 @20°C / 7.93-8.00 lbs./gal

Solubility in H₂O

Oxydemeton-methyl Miscible

Vapor Pressure

Oxydemeton-methyl 2.8x10⁻⁵ mm Hg @ 20°

10. STABILITY AND REACTIVITY

Stability: Stable under normal storage conditions for at least 36 months.

Hazardous

Polymerization: Will not occur

Decomposition

Products: None known

Hazardous

Mixtures: Avoid oxidizing agents

Conditions

To Avoid: Sustained temperature above 104°F (40°C). Avoid exposure to strong oxidizing agents. Subject to hydrolysis. Unstable in alkaline media.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies

Ingestion:	Acute Oral LD ₅₀ (rat-female):	>138 mg/kg body weight
	Acute Oral LD ₅₀ (rat-male):	>125 mg/kg body weight
Dermal:	Acute Dermal LD ₅₀ (rabbit-male):	>359 mg/kg body weight
	Acute Dermal LD ₅₀ (rabbit-female):	>253 mg/kg body weight
Inhalation:	Acute Inhalation LC ₅₀ (rat-male):	>0.73 mg/L air – 1 hour
	Acute Inhalation LC ₅₀ (rat-female):	>0.60 mg/L air – 1 hour
Eye Contact:	Mild irritant	
Skin Contact:	Slightly irritating	
Skin Sensitizer:	Not expected to be a skin sensitizer	

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

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

International Maritime Organization

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

International Civil Aviation Organization

Organophosphorus Pesticide, Liquid, Flammable, Toxic, 3 (6.1), UN 2784, 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

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, 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

NFPA Hazard Ratings

Health: 3
Flammability: 3
Reactivity: 0

0	Least
1	Slight
2	Moderate
3	High
4	Severe

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:

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