



MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

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

For 24-Hour Emergency Assistance (Spill, Leak, Fire, or Exposure), Call CHEMTREC^U:

For MEDICAL Emergency:

Inside the U.S.: (800) 424-9300
Outside the U.S.: (703) 527-3887
(888) 478-0798

Product:	Malathion 8	EPA Registration No.:	10163-21
EPA Signal Word:	Caution	CAS No.:	121-75-5
Active Ingredient:	Malathion (79.5%)		
Chemical Name:	O,O-Dimethyl dithiophosphate of diethyl mercaptosuccinate		
Chemical Class	Organophosphorous Pesticide		

2. HAZARDS IDENTIFICATION

Physical Properties

Appearance: Clear, light amber colored liquid
Odor: Mild mercaptan odor

Symptoms of Overexposure

Malathion causes inhibition of cholinesterase activity. Symptoms of intoxication include depressed ChE activity, headache, lacrimation, excessive salivation, anorexia, vomiting, uneasiness, restlessness, anxiety, ataxia, tremors, sweating, coma with absence of reflexes, dyspnea, cough, fluid in the lungs, non-reactive pin-point pupils, blurred vision, diarrhea, nausea, abdominal cramps, involuntary urination, muscular twitching, fasciculation, muscle cramping, weakness, and cyanosis. Severe overexposure may lead to muscular fibrillation, pulmonary edema, convulsions, possible cardiac arrest and death. Exposure to butanol in this formulation may produce drowsiness and irritation of the throat.

Medical Conditions Likely to be Aggravated by Exposure

Pre-existing skin, eye, liver, kidney and nervous disorders. Persons with depressed cholinesterase levels or hemolytic anemia, or who are under treatment with morphine, theophylline, aminophylline or phenothiazine drugs may show pronounced effects from exposure to this product.

Primary Routes of Exposure

Harmful if inhaled, ingested or if eye and skin contact occurs.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide, sulfur dioxide, phosphorus trioxide, methyl mercaptan, hydrogen sulfide, and dimethyl sulfide.

Unusual Fire, Explosion, and Reactivity Hazards

Containers in fire may burst or explode from excessive heat. Stay well back from fire area. Vapors may travel along floor to ignition source and flash back.

3. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	OSHA – PEL	ACGIH – TLV	OTHER	NTP/IARC/OSHA CARCINOGEN
Malathion (79.5%)	15.0 mg/m ³	10.0 mg/m ³	Not established	No
1-Butanol (1.3%) CAS# 71-36-3	300 mg/m ³	152 mg/m ³	Not established	No

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

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: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

Inhalation: Remove victim to fresh air.

Eye Contact: Flush eyes with plenty of clear water.

Skin Contact: Wash skin with soap and water.

Note to Physician

Malathion is a cholinesterase inhibitor with moderate oral toxicity. Removal of exposure by lavage with an endotracheal tube in place should be considered as aspiration of aromatic hydrocarbons may produce a severe pneumonitis. Administer the antidote atropine sulfate at 2 to 4 mg doses intravenously or intramuscularly. Repeat at 15-minute intervals until signs of atropinization appear. 2-PAM chloride is a pharmacological antidote and may be administered as an adjunct to, but not a substitute for, atropine. At the first sign of pulmonary edema, the patient should be given supplemental oxygen and treated symptomatically. Continued absorption of the poison may occur and fatal relapses have been reported after initial improvement. Very close supervision of the patient is indicated for at least 48 hours.

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

5. FIRE FIGHTING MEASURES

Flashpoint (test method): 180°F (TCC)

Appropriate Extinguishing Media

Use a dry chemical, foam, CO₂, water spray or fog. Avoid use of heavy water stream.

Fire Fighting Guidance

Smoke and fumes from fire may contain hazardous components. Use self-contained breathing apparatus and full protective clothing. Fight fire from upwind side. Avoid run-off. Keep non-essential personnel away from immediate fire area, and out of any fall-out or run-off areas. If water is used to fight fire or cool containers, contain run-off by diking to prevent contamination of water supplies.

Unusual Fire, Explosion, and Reactivity Hazards

Containers in fire may burst or explode from excessive heat. Stay well back from fire area. Vapors may travel along floor to ignition source and flash back.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spills or Leaks

Isolate and post spill area. Wear prescribed protective clothing and equipment. Keep out animals and unprotected persons. Keep material out of streams and sewers. Dike to confine spill, and absorb with an absorbent such as clay, sand or cat litter. Vacuum, shovel or pump wastes into an approved drum. To decontaminate spill area, tools and equipment, wash with a suitable solution (i.e., organic solvent, detergent, bleach or caustic), and add the solution to the drums of wastes already collected. Label drums for contents. Dispose of drummed wastes, including decontamination solution, according to the method outlined in Section 13 – Disposal Considerations.

7. HANDLING AND STORAGE

Precautions in Storing

DO NOT contaminate water, food or feed by storage or disposal. Store in a cool, dry, well-ventilated place. Avoid excess heat. Store in original containers only. Keep out of reach of children and animals. Do not contaminate other pesticides or fertilizers by storage or disposal.

Storage

Store in a cool, dry, well-ventilated place. Avoid excess heat. Store in original containers only. Keep out of reach of children and animals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation. After using this product indoors, ventilate thoroughly before occupying enclosed spaces. Thoroughly ventilate all transport vehicles prior to unloading. Store in a well-ventilated area. Use local exhaust at all process locations to control employee exposure.

Eye/Face Not required; however, to avoid eye contact due to excessive mists or vapors wear protective eyewear appropriate for exposure.

Skin Protection Applicators and other handlers must wear long-sleeved shirt and long pants, chemical-resistant gloves such as barrier laminate, butyl rubber \geq 14 mils, nitrile \geq 14 mils, or Viton \geq 14 mils, and shoes plus socks.

Respiratory Protection Not required; however, to avoid inhalation of excessive mists or vapors wear a dust/mist filtering respirator NIOSH/MSHA approval number prefix TC-21C).

Additional Protection Information Inspect gloves regularly for leaks. Emergency eyewash fountain should be located nearby. 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 long-sleeved shirt and long pants, chemical-resistant gloves such as barrier laminate, butyl rubber \geq 14 mils, nitrile \geq 14 mils, or Viton \geq 14 mils, and shoes plus socks.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, light amber colored liquid

Odor: Faint

PH: 3.69

Melting Point: Not applicable

Boiling Point: $> 300^{\circ}\text{F}$

Flammability: $54^{\circ}\text{C} / 129^{\circ}\text{F}$

Specific density: 1.161 g/mL.

Viscosity

(Centistokes): 21.5 @ 20°C

9.5 @ 40°C

Solubility in H₂O: Emulsifies

Miscibility: Miscible in corn oil

Vapor Pressure: 31 torr @ 25°C

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous

Polymerization: Will not occur

Decomposition

Products: Carbon monoxide, carbon dioxide, sulfur dioxide, phosphorus trioxide, methyl mercaptan, hydrogen sulfide, and dimethyl sulfide.

Hazardous

Mixtures: None known

Conditions

To Avoid: Excessive heat and fire, alkalis and oxidizers. Thermal decomposition and burning may produce highly toxic by-products.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies

Ingestion:	Acute oral LD ₅₀ =5400(M) / 5700(F) mg/kg (rat)
Dermal:	Acute dermal LD ₅₀ >2000 mg/kg (rat)
Inhalation:	Acute inhalation LC ₅₀ >5.2 mg/L (rat)
Eye Irritation:	Slight conjunctival irritation: clear by 7 days (rabbit)
Skin Irritation:	Slight dermal irritant (rabbit)
Skin Sensitizer:	Not a sensitizer (guinea pig)

Mutagenic Potential

None

Reproductive Hazard Potential

Acceptable

Chronic/Subchronic Toxicity Studies

Acceptable

Carcinogenic Potential

Acceptable

12. ECOLOGICAL INFORMATION

Summary of Effects

Malathion

This pesticide is toxic to fish, aquatic invertebrates and aquatic life stages of amphibians. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters. This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are actively visiting the treatment area.

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 the 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

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

14. TRANSPORT INFORMATION

DOT Classification

Not regulated.*

*For 30 gallon and 55 gallon containers DOT classification will be:

UN 3082, RQ, Environmentally Hazardous Substance, Liquid, N.O.S., (Malathion), 9, PG III

International Maritime Organization

UN 3082, Environmentally Hazardous Substance, Liquid, N.O.S., (Malathion), 9, PG III, Marine Pollutant, NAERG# 171

International Civil Aviation Organization

UN 3082, Environmentally Hazardous Substance, Liquid, N.O.S., (Malathion), 9, PG III, Marine Pollutant, NAERG# 171

15. REGULATORY INFORMATION

SARA Title III Classification

Section 302/304: Not applicable
Section 311/312: Immediate (acute) health hazard
Fire hazard
Section 313 chemical(s): Malathion, 1-Butanol

Proposition 65

Not applicable

CERCLA Reportable Quantity (RQ)

12.5 gals. of product (100 lbs. of Malathion)

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

NFPA Hazard Ratings

Health: 2
Flammability: 2
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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