MATERIAL SAFETY DATA SHEET

PRODUCT : Malathion 50% EC

PRODUCT DESIGNATION : Insecticide

Section 1. Product & Company Identification

Common Name	:	Malathion
Grade	:	Formulation
Active Ingredient	:	Malathion
Chemical Name of Active Ingredient (IUPAC)	:	diethyl (dimethoxyphosphinothioylthio) succinate
Chemical Family of A. I.	:	Organophosphate, Insecticide
Molecular Formula of A. I.	:	$C_{10}H_{19}O_7$ PS
Molecular Mass of A. I.	:	330.36 g/mol
Manufacturer & Supplier	:	**M/s PERFECT SOLUTIONS** **Office Add:** B-371, Paschim Vihar, New Delhi - 110063 (India) **Factory Add:** 15/1, 15/2, 15/3 Industrial Estate, Vidisha - 464001 (M.P)
Telephone Number	:	+91 8375844625

Section 2. Composition / Information on Ingredients

Name of the Component	Concentration % w/w
Malathion a.i	50.00% w/w
Other Ingredients	50.00% w/w
Total	100 % w/w

Section 3. Hazards Identification

GHS Classification:

Health hazards:

Acute toxicity - oral Category 4

Skin irritation Category 2

Eye irritation Category 2B

Aspiration hazard Category 1

Specific target organ toxicity -single exposure) Category 1

Specific target organ toxicity -repeated exposure) Category 2

Aquatic acute toxicity Category 1

Aquatic chronic toxicity Category 1

Hazard statements:

Harmful if swallowed.

Harmful if inhaled.

Precautionary statements:

Prevention: Wash thoroughly after handling. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear protective gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene, Nitrile/butadiene rubber ("nitrile" or "NBR") or Polyvinyl chloride ("PVC" or "vinyl"). Wear eye protection/face protection (see Section 8). Wash face and hands thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in well-ventilated area. Prevent from entering into sewers, waterways and/or groundwater. See Section 12: Ecological Information. Keep only in original container.

Section 4. First Aid Measures

Eye Contact: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes for at least 10 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Rinse mouth with water, 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. Have product label with you when calling a poison control center or doctor.

Skin Contact: Immediately flush skin with water for 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated leather items such as shoes, belts and watchbands.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Section 5. Fire Fighting Measures

Fire Hazards: Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Material will decompose rapidly when exposed to heat (>2120 F/1000 F and flame, increasing the risk of explosion. Thermal decomposition during a fire can produce fumes and irritating gases.

Flammability classification (OSHA 29 CFR 1910.1200): Non-Flammable

Flash point: 155°F (68.3°C)

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Evacuate the area and fight the fire from upwind at a safe distance to avoid hazardous vapors or decomposition products. Dike and collect fire-extinguishing water to prevent environmental damage and excessive waste runoff.

Firefighting media: Use dry foam, dry chemical, carbon dioxide, or water fog when fighting fires involving this product. Do not use water jet, as this may spread burning material. Minimize the use of water to avoid environmental contamination. Contain all runoff.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Use full face shield and operate in positive pressure mode. Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant firefighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Section 6. Accidental Release Measures

Steps to be taken if Material is Released or Spilled:

• Contain spilled material if possible. Small spills: Contain and absorb spilled material with inert, non-combustible absorbent material, sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Southern Agricultural Insecticides, Inc. for clean-up

assistance. See Section 13: Disposal Considerations, for additional information. Personal Precautions:

• Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8: Exposure Controls and Personal Protection.

Environmental Precautions: Prevent spilled material from entering into soil, ditches, sewers, waterways and/or groundwater.

Section 7. Handling & Storage

Handling: General Handling: Avoid contact with eyes, skin, and clothing. Wash thoroughly with soap and water after handling. Do not swallow. Avoid breathing vapor. Use with adequate ventilation. Wear chemical protective equipment when handling. Keep away from heat, sparks and flame.

Storage: Store locked up in a cool, dry, well-ventilated area designated specifically for pesticides and away from heat sources. Keep in original containers and keep containers closed when not in use.

Section 8. Exposure Control, Personal Protection

Personal Protection:

Eye/Face Protection: Wear safety glasses with side shields or chemical splash goggles to prevent vapors or mists from entering the eyes. If using a full face shield, always use safety glasses or goggles along with the face shield to ensure adequate protection of the eyes.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene, Nitrile/butadiene rubber (“nitrile” or “NBR”) or Polyvinyl chloride (“PVC” or “vinyl”).

Respiratory protection should be worn when there is a potential to exceed the Protection: exposure limit requirements or guidelines. When handling in enclosed areas, when large quantities of mists are generated or prolonged exposure is possible in excess of the 8-houir TWA, use a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefixTC14G).

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls: Ventilation: When handling this product proper ventilation is required to maintain exposure below the 8-hour TWA. Ventilate all transport vehicles prior to unloading. Facilities storing or utilizing this material should be equipped with and eyewash facility and safety shower.

Section 9. Physical and Chemical Properties

Appearance / state	**:**	liquid
Colour	**:**	golden
Odour	**:**	Mercaptan odour
Boiling point	**:**	>300°F
Vapour pressure	:	<24.8
Ph	:	3.9
Flash Point		155°F
Bulk Density (H20 = 1)	**:**	8.83 Ibs.lgal.
Water Solubility	**:**	Emusifies

Section 10. Stability & Reactivity

Stability/lnstability: Thermally stable if handled at typical use temperatures and in closed containers. Conditions to Avoid: Avoid heat of open flame. Avoid high temperatures above 130°F (54.4°C). Avoid reducing agents

Incompatible Materials: Strong alkalies and strong oxidizers

Hazardous Polymerization: Will not occur

Thermal Decomposition: Can include oxides of sulfur and phosphorus-containing compounds. Incomplete combustion may lead to formation of carbon monoxide and/or other asphyxiants.

Section 11. Toxicological Information

Acute Oral Toxicity- LD_{50}	Rat >550 mg/kg
Acute Dermal Toxicity- LD_{50}	Rabbit: >2000 mg/kg
Acute Inhalation - LC_{50}	Rat >5.2mg/l(4h)
Eye irritation	Slight Irritating to eyes (Rabbit)
Skin Irritation	Slighlty irritating (Rabbit)
Skin Sensitization	Non skin sensitizer

Section 12. Ecological Information

Toxicity to FishesLC50 (96 hr): Rainbow Trout 0.18 mg/kg

Toxicity to Daphnia magna, 48 h, EC 0: 0.72 mg/L

Toxicity to Bees Toxic to bees

Toxicity to Birds Acute Oral LD50 mallard duck: 1485mg/kg

Bobwhite Quail, LD50: 359 mg/kg

Section 13. Disposal Consideration

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

Section 14. Transport Information

IMDG Classification

Shipping name : Environmentally hazardous substance, liquid, n.o.s.

Class	:	9
Packing group	:	III
UN number	:	3082
Marine Pollutant	:	Yes

Section 15. Regulatory Information

Hazards Symbol	: Xn
Risk phrases	: R10,R20/22,R43, R51/53 and R57
Safety phrases	: S1/2, S13, S20/21, S36/37/39,S29/5

Section 16. Other Information

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are resented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulations containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS. Accordingly, no guarantee or warrantee expressed or implied is made by PERFECT SOLUTIONS, as to the results to be obtained based upon the user's use of the information, nor does PERFECT SOLUTIONS, assume any liability arising out of user's use of the information.

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