MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	:	Monocrotophos Technical
CAS No	:	6923-22-4
Use	:	Insecticide
Company Info	:	M/s HPM Chemicals & Fertilizers Ltd 209-210, Anupam Bhawan, Commercial Complex Azadpur, Delhi-110033
Telephone	:	(011)-45071800, 899
Fax	:	(011)- 27681800
Website	:	www.hpmindia.com
E-mail	:	info@hpmindia.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Composition	**Concentration**
Monocrotophos a.i.	80.00% min.
Other associates impurities	20.00% max

3. HAZARDS IDENTIFICATION OF PREPARATION

It can affect you when breathed in and quickly enters the body by passing through the skin

4. FIRST AID MEASURES

Skin Contact	**:**	Remove contaminated clothing and shoes immediately. Wash contaminated area with soap or mild detergent and large amount of water until no effects of chemical remains. If symptoms persists get medical help.
Eye Contact	**:**	Irrigate the eyes with large amount water or normal saline occasionally lifting upper and lower lids until no evidence of chemical remains and obtain a medical help.
Ingestion	**:**	Remove by gastric lavage and catharsis, maintain blood pressure and airway, Give oxygen if respiration is depressed. Do not perform gastric lavage if victim is victim is unconscious. Get medical attention immediately.
Inhalation	**:**	Remove the patient from the exposure area to fresh air immediately. If breathing has stopped perform the artificial respiration. Keep person warm and rest. Get medical attention immediately.

5. ACCIDENTIAL RELEASE

Personal Preparation	:	Avoid contact with skin, eyes and clothing.
Environmental Precautions	:	Prevent contamination of soil, drains and surface water.
Method of cleaning	:	Absorb the material in the sand, soil, diatomaceous earth or suitable absorbent. Place in suitable material and remove to safe place or dispose of in an incinerator approved for chemicals.

6. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	:	Dry chemical, CO2, Water spray, standard foam. For larger fire, use water spray, fog or standard foam.
Exposure Hazards	:	During a fire, irritating and possibly toxic gases like carbon dioxide; carbon monoxide; nitrogen oxides; sulfur dioxide; hydrogen chloride; may be generated by thermal decomposition or combustion
Fire-Fighting	:	Use dry chemical, foam or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate non essential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

7. HANDLING AND STORAGE

Handling	:	Use appropriate (impervious) clothing, gloves and closed foot ware to prevent the repeated contact with skin. Use flash proof and dust resistant goggles to prevent the contact with eyes.
Storage	:	Keep the product in original container tightly closed and correctly labeled. Store in suitable, cool, dry, well ventilated place under lock and key; away from the reach of the children, animals, food and animal feeding stuffs. Store away from the incompatible substances and source of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Technical protective measures	**:**	None
Exposure controls limits	**:**	Not Established
Respiratory protection	**:**	Wear suitable mask
Hand protection	**:**	Wear impervious gloves
Eye protection	**:**	Wear flash proof and dust resistant goggles.
Skin protection	**:**	Wear impervious clothing and closed foot ware.

9. PHYSICAL AND CHEMICAL PROTERITES

Melting point : 54-55°C
Boiling point :125°C
Density : 1.22kg/L@20°C
Vapor pressure: 2.9×10^{-1}
mPa at 20°C
Solubility : in water 100%
In organic solvent(20°C) : methonal 100% ; acetone 70% ;
n-octyl alcohol 25% ;
toluene 6%

10. STABILITY AND REACTIVITY

Chemical stability: Stable under normal conditions of use. No dangerous action known under normal conditions.
Hazardous polymerisation: None
Conditions to avoid:Extreme heat and fire
Incompatible materials: None known

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Monocrotophos is a direct acting cholinesterase inhibitor capable of penetration through the skin. The dose which killshalf of the test animals, the LD50, is 17-18 mg/kg for male rats and 20 mg/kg for female rats. The LD50 for dermal exposure is 126 mg/kg for male rats, 112 mg/kg for female rats, and 354 mg/kg for rabbits. The concentration in air at which half of the test animals die, the LC50, is 0.8 mg/l air. Monocrotophos is not irritating to skin and eyes. Symptoms of monocrotophos poisoning are similar to those of other organophosphate compounds. Its cholinesterase inhibiting activity causes nervous system effects. Cases of human poisoning are characterized by muscular weakness, blurred vision, profuse perspiration, confusion, vomiting, pain, and small pupils. There is a risk of death due to respiratory failure. Chronic Toxicity: No In formation Available. Reproductive Effects: Rats who received doses of 2 mg/kg/day monocrotophos produced fetuses with lower than average length and weight. This dose is much higher than expected from normal application of this pesticide. Teratogenic Effects: No teratogenic effects were found at 2 mg monocrotophos/kg/day in rats, the highest dose tested . Mutagenic Effects: Studies show that monocrotophos may be weakly mutagenic. Carcinogenic Effects: Monocrotophos is not carcinogenic in rats at 0.45 mg/kg/day, the highest dose tested. No significant carcinogenic lesions were observed when rats were exposed to monocrotophos aerosol at concentrations from 97-308 mg/m3 for one hour. Organ Toxicity: Monocrotophos affects the central nervous system by inhibiting cholinesterase, an enzyme essential for normal nerve impulse transmission.

12 ECOLOGICAL INFORMATION

Effects on Birds: Monocrotophos is highly toxic to birds. The LD50 is 0.76 mg/kg for California quail, 0.94 mg/kg for bobwhite quail, 1.58 mg/kg for Canada goose, 3.3 mg/kg for European starling and 4.76 mg/kg for mallard ducks.
Effects on Aquatic Organisms: Monocrotophos is moderately toxic to fish. The LC50 (48hrs) is 7 mg/l for rainbow trout and 23 mg/l for bluegill sunfish. Monocrotophos causes reproductive damage to crustaceans exposed for long periods of time.
Effects on Other Animals (Nontarget species) : Monocrotophos is highly toxic to bees. It may also kill non-target birds which eat insects poisoned with monocrotophos.

13. DISPOSAL CONSIDERATION

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed on site (by use according to the label) or at an approved waste disposal facility. Further information can be obtained from the EPA or the equivalent state and local agencies.
CONTAINER DISPOSAL: Completely empty bag into application equipment. Check with EPA, State, and local authorities for the current regulations applicable to your area for disposal of waste containers.

14. TRANSPORT INFORMATION

Not applicable

15. REGULATORY INFORMATION

EPA Registration No. 432-1217
US Federal Regulations
TSCA list
None.
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
None.
SARA Title III - Section 302 - Notification and Information
None.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.
US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.
This product does not contain any substances known to the State of California to cause reproductive harm.
US State Right-To-Know Ingredients
None.
Canadian Regulations
Canadian Domestic Substance List
None.

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 presented 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 produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.