

Profenofos -MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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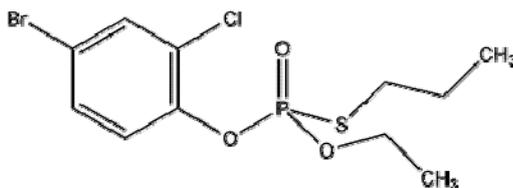
1. Chemical Product Identification

Product Name: Profenofos

Molecular Formula: C₁₁H₁₅BrClO₃PS

Molecular Weight: 373.6

Structural Formula:



Chemical Name: O-4-bromo-2-chlorophenyl O-ethyl S-propyl phosphorothioate

Form: Oily liquid

Color: Amber-clored

Odor: Garlic-like odor

CAS No.: 41198-08-7

2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Profenofos	41198-08-7	90.0
Other ingredients		10.0

3. Hazards Identification

Acute Effects

This product is moderately hazardous, however, no adverse effects are expected if the product is handled in accordance with this material safety data sheet and the product label.

Repeated minor exposure may have a cumulative poisoning effect. Moderately toxic if swallowed. Moderate eye irritant. Moderate skin irritant. The active ingredient Profenofos can be rapidly absorbed through the skin. Poisoning may occur due to cholinesterase inhibition. Moderately toxic if inhaled. May lead to nausea, dizziness and loss of consciousness.

Chronic effects

Repeated minor exposure may have a cumulative poisoning effect due to cholinesterase inhibition. Cholinesterase levels will return to normal a few weeks after exposure is stopped. Profenofos is not considered to have mutagenic, carcinogenic, teratogenic or reproductive effects.

4. First Aid Measures

If poisoning occurs, contact a doctor or poisons information centre. Get to a doctor or hospital quickly. Obtain an emergency supply of atropine tablets 0.6mg.

Swallowed: do not induce vomiting. Give a glass of water. If swallowed give one atropine tablet every fifteen minutes until dryness of the mouth occurs.

Eye: if in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor. If poisoning occurs give atropine tablets as above.

Skin: remove contaminated clothing and wash skin thoroughly. If poisoning occurs give atropine tablets as above.

Inhaled: if inhaled, remove to fresh air. If poisoning occurs give atropine tablets as above.

Advice to doctor: this product is a cholinesterase inhibitor. Atropine sulfate is antidotal. Symptoms of poisoning are typical of organophosphate poisoning and include; nausea, diarrhoea, dripping nose and mouth, excessive salivation, stomach cramps, excessive sweating, trembling, loss of muscle co-ordination, muscular twitches, weakness, mental confusion, blurred vision, breathing difficulties, rapid pulse pin-point pupils.

5. Fire-Fighting Measures

Flashpoint: 124°C (closed cup)

Flammable limits: This product is non-flammable, however it is combustible.

Fire and explosion hazard: combustible liquid. Vapors can form explosive mixtures at temperatures at or above the flash point. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing media: fine-water spray, fog or foam.

Firefighting instructions: evacuate area and fight fire from a safe distance. Approach from upwind to avoid hazardous vapors and decomposition products. Fire exposed containers can build up pressure and should be kept cool with water spray if possible. Explosive vapor could form from ruptured containers. Foam fire extinguishing system is preferred to prevent environmental damage from excessive water run off. If water is used,

avoid heavy hose streams. If possible, dike and collect water used to fight fire to prevent minimize run off.

Firefighting equipment: self-contained breathing apparatus with full-face piece. Wear full firefighting turn-out gear (bunker gear). Hazardous combustion products: hydrogen chloride. Ethyl sulfide, diethyl sulfide, nitrogen oxides.

6. Accidental Release Measures

Spills and disposal

In case of spillage it is important to take all steps necessary to: avoid eye and skin contact; avoid contamination of waterways; shut off all possible sources of ignition. Do not smoke.

Procedure for spill:

Keep all bystanders away. Wear full-length clothing and PVC gloves. Re-position any leaking containers so as to minimise further leakage. Dam and absorb spill with an absorbent material (e.g. sand or soil). Shovel the absorbed material into drums and top with hydrated lime. Decontaminate the spill area with hydrated lime scattered over the spill prior to rinsing off with water.

7. Handling And Storage

Handling

Keep out of reach of children. Very dangerous. Poisonous if absorbed by skin contact, inhaled or swallowed. Avoid contact with eyes and skin. Do not touch or rub eyes, nose or mouth with hand when handling granules. Wear protective clothing and equipment as above. Keep away from volatile chemicals and sources of ignition. If product on skin, immediately wash area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, respirator and contaminated clothing with detergent and warm water.

Storage

Keep out of reach of children: store in the closed, original container in a dry, cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilisers. Do not store in or around the home. Store below 45°C. Avoid extreme heat. Keep dry – moisture can increase handling hazards.

8. Exposure Controls/Personal Protection

Engineering controls: no special requirements. Product is used outdoors.

Personal protective equipment

Eye protection: safety glasses. Clothing: long-sleeved shirt and long pants. Shoes plus socks. Gloves: chemical-resistant such as barrier laminate or viton. Respirator: when handled in an area where exposure limits may be exceeded, use a Respirator with either

an organic vapor removing cartridge with a prefilter approved for Pesticides (msha/niOSH approval number prefix tc-23c), or a canister approved for Pesticides (msha/niOSH approval number prefix tc-14g).

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 and maintaining ppe. If no such instructions for washables, use detergent and hot water. Keep and wash ppe separately from other laundry.

User safety recommendations:

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. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

9. Physical and Chemical Properties

Appearance: Light yellow liquid

Odour: with a garlic-like odour.

Boiling point: 100°C/1.80 pa

Vapor pressure: 1.24 x 10⁻¹ mPa (25°C)

Solubility: 28 mg/l in water at 25 °C, readily miscible with organic solvents.

Water content: ≤0.3%

Acidity: ≤1.0%

10. Stability and Reactivity

Chemical stability: normally stable.

Conditions to avoid: avoid temperatures above (60°C).

Incompatibility with other materials: strong alkalis, amines and oxidizers.

Hazardous decomposition products: during a fire this product may release smoke and hazardous decomposition products.

Hazardous polymerization: will not occur.

11. Toxicological Information

Acute toxicity

Oral LD₅₀ for Rats: 358mg/kg

Dermal LD₅₀ for Rats: 472mg/kg

Inhalation LC₅₀ Rats: 3.0mg/m³ (4 hours)

Skin irritation for Rabbit: No irritation

Eye irritation for Rabbit: Slight irritation

Skin sensitization for Guinea Pig: No sensitizer

Teratogenicity: None of the other doses tested produced changes in the pregnancy ratio, percentage of live or dead fetuses, number of resorptions, or live fetal weights or sex ratios. Similarly none of the dose appeared to affect embryonic or fetal development and no teratogenic effects were observed.

Reproduction: No compound related effects on body weight, mortality, behavior, or various parameters measuring fertility (fecundity index, male or female fertility index) in any of the parenteral animals.

12. Ecological And Ecotoxicological Information

Environmental summary

May be harmful to bees and fish. Do not apply when bees are actively foraging in the area. Application should be timed to provide the maximum possible interval between treatment and the next period of bee activity. Do not contaminate water used for irrigation or domestic purpose or water areas, such as ponds, ditches, lakes, drainage systems, etc., by disposal of waste. The freshly treated area must not be grazed, no food or feed collected from it, and all live-stock to be kept out. Do not contaminate food or feed.

Fish toxicity:

96 hour LC50 for Rainbow trout: 0.08 mg/l

96 hour LC50 for blue gill: 0.30 mg/l

Birds toxicity:

Oral LD50 for Bobwhite quail: 201ppm

Acute oral LC50 for mallard duck: 512ppm

Bee toxicity: Toxic to bees.

13. Disposal Considerations

Waste: pesticide wastes are toxic and hazardous. Dispose of in accordance with applicable and local laws and regulations. Do not discharge or pour into soil, drainage system or bodies of water.

Container: 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 (plastic containers). If burned, stay out of smoke.

14. Transport Information

Not applicable.

15. Regulatory Information

Not applicable.

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.