

SAFETY DATA SHEET PROFENOFOS TECHNICAL



1: Identification

1.1 Identification

Product form	:	Substance
Substance Name	:	Profenofos Technical
IUPAC Name	:	(RS)-[O-(4-bromo-2-chlorophenyl) O-ethyl S-propyl phosphorothioate]
CAS No	:	41198-08-7
EC/ List No	:	255-255-2
Formula	:	C ₁₁ H ₁₅ BrClO ₃ PS
Synonyms:	:	4-bromo-2-chloro-1-[ethoxy(propylsulfanyl)phosphoryl]oxybenzene

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	:	Insecticide
Relevant identified uses	:	For industrial use only.
Uses advised against:	:	Not known

1.3. Details of the supplier of the safety data sheet

Manufacturer / Supplier	:	NACL Industries Limited Plot No.12-A, 'C' Block, Lakshmi Towers, Nagarjuna Hills, Panjagutta, Hyderabad- 500082.
Address	:	Telangana INDIA
Email Id	:	info@naclind.com
Web site address	:	www.naclind.com
Tele Fax Number	:	T 0091 4033605264

1.4. Emergency telephone Number

Emergency number	:	0091 4033605264 (Monday – Friday - 09.30 hrs to 18.00 hrs)
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2: Hazard(s) identification



GHS classification :

2.1: Classification of the substance or mixture

Acute toxicity-Oral, category 4	:	H302
Acute toxicity - Dermal, Category 4	:	H312
Acute toxicity - Inhalation, Category 4	:	H332
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1	:	H400
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1	:	H410

For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements

Hazard Pictograms	:	 
		GHS07 GHS 09

Signal word : Warning

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Hazard Statements	: H302 Harmful if swallowed H312 Harmful in contact with skin H332 Harmful if inhaled H400: Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard] H410 Very toxic to aquatic life with long lasting effects P264 – Wash face, hand and any exposed skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product.
Precautionary Statements	: P280 Wear protective gloves/protective clothing/eye protection/face protection. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P270 Do not eat, drink or smoke when using this product. P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/if you feel unwell. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P312 Call a POISON CENTER/doctor/..if you feel unwell. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P391 Collect spillage.. P501 Dispose of contents/container to ...

2.3. Other hazards

Other hazards not contributing to the Classification: None

2.4. Unknown acute toxicity

Not applicable

3 : Composition/ Information on ingredients

3.1 Substance

Substance type : Mono-constituent

Name	Product Identifier	% /w/w	GHS Classification
Profenefos	(CAS No) 41198-08-7 (EC No) 255-255-2	89	H302, H321, H332 H400, H 410
Related reaction products	----	11	--

Full text of the hazard classes and H-Statements: see Section 16

3.2 Mixture

Not applicable

4: First aid measures

4.1 Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: refer. doctor/hospital. Treat as a cholinesterase inhibitor. Atropine sulphate is antidotal.
First-aid measures after inhalation	: Remove the victim into fresh air. Immediately consult a doctor/medical service.
First-aid measures after skin contact	: Wash immediately with lots of water (20 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage.

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Consult a doctor/medical service.

- First-aid measures after eye contact : Rinse immediately with plenty of water for 20 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.
- First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give activated charcoal. Immediately consult a doctor/medical service. I. Give a glass of water. If swallowed give one atropine tablet every five minutes until dryness of the mouth occurs. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : Excerpt from ERG Guide 152 [Substances - Toxic (Combustible)]: Highly toxic, may be fatal if inhaled, swallowed. Effects of contact or inhalation may be delayed.
- Symptoms/injuries after skin contact : Highly toxic if absorbed through skin. Contact with molten substance may cause severe burns to skin. Avoid any skin contact
- Symptoms/injuries after eye contact : May cause severe burns to eyes
- Symptoms/injuries after ingestion : Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed
- Chronic symptoms : May be fatal if inhaled, swallowed or absorbed through skin. organophosphorus poisoning.

4.3. Indication of any immediate medical attention and special treatment needed

Seek medical assistance. Basic treatment: Establish a patent airway. Suction if necessary. Aggressive airway control may be needed. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary. Monitor for shock and treat if necessary. Anticipate seizures and treat if necessary. Administer atropine. Correct hypoxia before giving atropine. Administer pralidoxime chloride (2 PAM). USE UNDER DIRECT PHYSICIAN ORDERS ONLY. Treat seizures with adequate atropinization and correction of hypoxia. Rarely is diazepam necessary. For hypotension with signs of hypovolemia, administer fluid cautiously and consider vasopressors for hypotension with a normal fluid volume. Watch for signs of fluid overload. Use proparacaine hydrochloride to assist eye irrigation. /Organophosphates and related compounds/

5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Dry Powder / Foam/ water fog /water spray
- Unsuitable extinguishing media : DONOT Use water Jet as an extinguisher, as this will spread fire.

5.2. Special hazards arising from the substance or mixture

- Fire hazard** : Excerpt from ERG Guide 152 [Substances - Toxic (Combustible)]: Combustible material: may burn but does not ignite readily. Runoff may pollute waterways. Substance may be transported in a molten form. (ERG, 2016). During fire, gases hazardous to health may be formed.
- Explosion hazard** : Containers may explode when heated.
- Upon combustion: Carbon monoxide, Carbon dioxide, Oxides of phosphorous, Sulphur oxides, Hydrogen bromide gas, Hydrogen chloride gas are formed.
- Reactivity** : Organophosphates are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides. Partial oxidation by oxidizing agents may result in the release of toxic phosphorus oxides.

5.3 Advice for Firefighters

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Firefighting Instructions	: : LARGE FIRE: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. Use water spray or fog; do not use straight streams. : FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. : Do not get water inside containers. Cool tanks/drums with water spray/remove them into safety location. Do not move the load if exposed to heat. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection

6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Protective equipment	: Corrosion-proof suit. Refer "Material-Handling" to select protective clothing.
Emergency Procedures	: Mark the danger area. Consider evacuation. Close doors and windows of adjacent premises. Stop nearby engines and no smoking. Keep containers closed. Wash contaminated clothes. As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids. SPILL: Increase, in the downwind direction, as necessary, the isolation distance shown above. FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2016)

6.1.2 For emergency responders

Protective equipment	: Equip cleanup crew with proper protection. Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. (ERG, 2016)
Emergency Procedures	: Stop leak if safe to do so. Ventilate area

6.2 Environmental Precautions

Prevent soil and water pollution. Prevent spreading in sewers, water bodies.

6.3 Methods and material for containment and cleaning up

For Containment	: Measure the concentration of the explosive gas-air mixture. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills. : Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Scoop spilled substance into closing containers. Clean contaminated surfaces with an excess of water. Take
Methods of cleaning up	: collected spill to manufacturer/ authorized disposal facility. Wash clothing and equipment after handling

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6.4 Reference to other sections

No additional information available

7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. clean/dry the installation before use.
	:	Do not discharge the waste into the drain. Do not use compressed air for pumping over. Keep container tightly closed.
	:	work under local exhaust/ventilation. Exhaust gas must be neutralized.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work

7.2. Conditions for safe storage, including any incompatibilities

Storage temperature	:	Recommended storage atmospheric Normal temperature.
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Prohibitions on mixed storage	:	KEEP SUBSTANCE AWAY FROM: combustible materials. Reducing agents, Oxidizing agents. (strong) bases. Esters, halides.
Storage area	:	Store in a dry area. Ventilation at floor level. Keep out of direct sunlight. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. secure fragile packaging's in liquid containers.
Packaging Materials	:	SUITABLE MATERIAL: HDPE

8: Exposure controls/personal protection

8.1 Control Parameters

ACGIH	Not listed
OSHA	Not listed
IDLH	Not listed

8.2 Exposure controls

Appropriate engineering controls	:	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Material should be handled safely
	:	Protective goggles. Gloves. Protective clothing. Face shield. Gas mask with filter.
Personal protective equipment	:	
Materials for protective clothing	:	GIVE EXCELLENT RESISTANCE: butyl rubber. polyethylene/ethylene vinyl alcohol.
	:	GIVE GOOD RESISTANCE: neoprene. GIVE LESS RESISTANCE: natural rubber. PVC. GIVE POOR RESISTANCE: polyethylene. PVA.
Hand protection	:	Gloves.
Eye protection	:	Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin and body	:	Complete suit protecting against chemicals.

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protection

Respiratory protection : Use a full face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

Thermal hazard protection : None.

9: Physical and chemical properties

Physical States : Liquid
Appearance : Amber color oily liquid
Color : *Amber color*
Odor : Garlic like
Odor threshold : No data available
pH (10% Aq Solution) : 4-7.5 @20°C
Melting Point : No data available
Freezing point : No data available
Boiling point : 100 °C
Flash Point : No data available
Flammability(solid, gas) : No data available
Vapor pressure : 9.00e-07 mmHg (25 °C)
Relative vapour density at 20 °C : No data available
Relative density : 1.5 g/cm³
Specific gravity / density : 1.455 @ 20 °C
Molecular mass : 373.63 g/mol
Solubility : 28 mg/l (25 °C) in water. Readily miscible with most organic solvents.
Partition Coefficient – Log Pow : 4.68 (Experimental value; 20 °C, n-octanol water)
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity Kinematic : No data available
Viscosity dynamic : No data available
Explosion limits : No data available

9.2 Other information

No data available

10: Stability and reactivity

10.1 Reactivity

Organophosphates are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides. Partial oxidation by oxidizing agents may result in the release of toxic phosphorus oxides.

10.2 Chemical stability

Relatively stable under neutral & slightly acidic conditions. Unstable under alkaline conditions.

10.3 Possibility of hazardous reactions :

No dangerous reaction known under conditions of normal use. However formation of toxic and flammable phosphine gas in the presence of strong reducing agents.

10.4 Conditions To Avoid

Heat, flames and sparks. Extremes of temperature may decompose the products. Contact with incompatible material. Highly alkaline conditions

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12.2 Persistency and degradability

Persistency and degradability : In an alkaline (pH 7.8) soil, profenofos degraded with a half-life of 2 days in aerobic conditions and 3 days in anaerobic conditions. The major degradates are 4-bromo-2-chlorophenol and O-ethyl-S-propyl phosphorothioate.

12.3 Bio-accumulative potential

Bio-accumulative potential : No data available

12.4 Mobility in soil

Ecology-soil : Stable towards direct photolysis in water and on soil. It is expected to have very low to slight mobility based upon a range of Koc values from 869 to 3,162.

12.5 Other adverse effects

No relevant data found.

13: Disposal Considerations

13.1. Waste treatment methods

Waste Disposal recommendations : Dispose of product concentrate and diluted product according to local waste regulation authority. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems. Containers can be rinsed and offered for recycling (authorized). Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in licensed landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14: Transport information

Marine

transport(IMDG)

UN number : 3018
 Proper shipping name and description : Organo phosphorus Pesticide, Liquid, Toxic
 Class : 6.1
 Packaging group : III
 Hazard identification Number : --
 EMS Code : F-A, S-A
 Marine pollutant : Yes

Air Transport

ICAO/IATA

UN number : 3018
 Proper shipping name and description : Organo phosphorus Pesticide, Liquid, Toxic
 Class : 6.1
 Packaging group : III
 Hazard identification Number : --
 EMS Code : F-A, S-A
 Environmental Hazard : Yes

Department of Transportation(DOT)

UN number : 3018
 Proper shipping name : Organo phosphorus Pesticide, Liquid, Toxic
 Transport hazard class : 6.1
 Packaging group(DOT) : III

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Poison inhalation
Hazard

Yes

Hazard labels(DOT)



15. Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

The product is not affected by the Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer.

Product classification according to Annex I of Directive 2012/18/EU (SEVESO III): E1

The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products.

The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.

16 : Other Information

Hazard Statements : H302 Harmful if swallowed
H312 Harmful in contact with skin
H332 Harmful if inhaled
H317 May cause an allergic skin reaction.
H400: Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]
H410 Very toxic to aquatic life with long lasting effects

Precautionary Statements : P264 Wash face, hand and any exposed skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P270 Do not eat, drink or smoke when using this product.
P301+P312 IF SWALLOWED: Call a Poison center /doctor/if you feel unwell.
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P312 Call a POISON CENTER/doctor/..if you feel unwell.
P321 Specific treatment (see ... on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P391 Collect spillage..

NFPA Label	Hazard	Value	Description
	Health	3	Extreme danger
	Flammability	1	Above 200° F
	Instability	1	Unstable if heated
	Special	---	

((NFPA, 2010))

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