SECTION-1: Identification of the substance / mixture and the company / undertaking

Catalogue Number	CS-T-46384
Product Name	Vernolate
CAS No.	1929-77-7
Category	Pesticide Standards
Synonyms	S-propyl dipropylcarbamothioate
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email **sales@clearsynth.com** for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Acute toxicity (Category 4)

2.2 Label Elements

Signal Word: Warning



Hazard Statement(s)

Code	Statement
H302	Harmful if swallowed.
H411	Toxic to aquatic life with long lasting effects.
H361	Not available
H373	Not available

H400	Not available
H410	Not available

Precautionary Statement(s)

Code	Statement
P264	Wash hands thoroughly after handling.
P270	Not available
P273	Not available
P301+P317	Not available
P330	Not available
P391	Not available
P501	Dispose of contents/container in accordance with local/regional/national/international regulatio
P203	Not available
P260	Not available
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P318	Not available
P319	Get medical help if you feel unwell.
P405	Store locked up.

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Vernolate
CAS Number : 1929-77-7
Molecular Formula : C10H21NOS
Molecular Weight : 203.34
Parent Chemical : -
Synonyms : S-propyl dipropylcarbamothioate
Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures
- General advice: Remove contaminated clothing and shoes. Seek medical attention if symptoms persist or develop.
- Inhalation: Move person to fresh air. If breathing is difficult, seek medical attention.

- Skin contact: Wash with plenty of soap and water. Get medical attention if irritation occurs.
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention if irritation persists.
- Ingestion: Rinse mouth. Do NOT induce vomiting unless directed by medical personnel. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed
- Not available.

4.3 Indication of any immediate medical attention and special treatment needed
- Treat symptomatically. No data available.

SECTION 5: Firefighting measures

SECTION 5: Fire-fighting measures

5.1 Extinguishing media
- Suitable extinguishing media: Use extinguishing measures appropriate to surrounding fire (e.g., water spray, alcohol-resistant foam, dry chemical, carbon dioxide).
- Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture
- Hazardous combustion products: Not available. Thermal decomposition may produce irritating and/or toxic fumes.

5.3 Advice for firefighters
- Wear self-contained breathing apparatus (SCBA) and full protective gear.
- Cool containers with water spray to prevent rupture if exposed to fire.
- Prevent fire-fighting water from entering drains or waterways.

SECTION 6: Accidental release measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
- Avoid breathing dust/vapors/mist.
- Avoid contact with skin and eyes.
- Use appropriate personal protective equipment (see Section 8).
- Ensure adequate ventilation.

6.2 Environmental precautions
- Avoid release to the environment.
- Prevent entry into drains, surface water, and soil.

6.3 Methods and material for containment and cleaning up
- Contain spill. Absorb with inert material (e.g., sand, earth, vermiculite).
- Collect into suitable, labeled containers for disposal.
- Clean contaminated area with detergent and water; avoid generating aerosols.

6.4 Reference to other sections
- See Section 8 for exposure controls/personal protection and Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Use with adequate ventilation.
- Avoid contact with skin, eyes, and clothing.
- Avoid breathing dust/vapors/mist.
- Do not eat, drink, or smoke when using this product.
- Wash hands thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities
- Store in tightly closed container in a cool, dry, well-ventilated place.
- Protect from heat and direct sunlight.
- Keep away from incompatible materials. Specific incompatibilities: Not available.

7.3 Specific end use(s)
- Pesticide standard / laboratory use. Not for food, drug, or household use.

SECTION 8: Exposure controls / personal protection

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
- Occupational exposure limits: Not available.
- Biological limit values: Not available.

8.2 Exposure controls
- Engineering controls: Provide local exhaust ventilation or general dilution ventilation to maintain exposure below applicable limits.
- Personal protective equipment (PPE):
- Eye/face protection: Safety glasses with side shields or chemical splash goggles.
- Skin protection: Protective gloves (material not available). Wear protective clothing as appropriate.
- Respiratory protection: If ventilation is inadequate or exposure is possible, use a NIOSH/EN-approved respirator suitable for the hazard. Specific selection: Not available.
- Hygiene measures: Remove contaminated clothing and wash before reuse. Wash hands after handling.
- Environmental exposure controls: Avoid release to the environment; use appropriate containment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	No data available
b) Color	No data available
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

SECTION 10: Stability and reactivity

10.1 Reactivity
- No data available.

10.2 Chemical stability
- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
- No data available.

10.4 Conditions to avoid
- Heat, open flames, and other ignition sources. Other conditions: Not available.

10.5 Incompatible materials
- Not available.

10.6 Hazardous decomposition products

- Not available. May emit irritating and/or toxic fumes upon decomposition.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
- Acute toxicity: Some thiocarbamates (EPTC, Molinate, Pebulate, and Cycloate) share a common mechanism of toxicity, i.e. the inhibition of acetylcholinesterase. An acetylcholinesterase inhibitor suppresses the action of acetylcholine esterase. Because of its essential function, chemicals that interfere with the action of acetylcholine esterase are potent neurotoxins, causing excessive salivation and eye-watering in low doses. Headache, salivation, nausea, vomiting, abdominal pain and diarrhea are often prominent at higher levels of exposure. Acetylcholine esterase breaks down the neurotransmitter acetylcholine, which is released at nerve and muscle junctions, in order to allow the muscle or organ to relax. The result of acetylcholine esterase inhibition is that acetylcholine builds up and continues to act so that any nerve impulses are continually transmitted and muscle contractions do not stop. Data concerning the effects of thiocarbamates on man are scarce. However, cases of irritation and sensitization have been observed among agricultural workers. Some thiocarbamates, e.g., molinate, have an effect on sperm morphology and, consequently, on reproduction. However, no teratogenic effects have been observed. The results of mutagenicity studies have shown that thiocarbamates containing dichloroallyl groups are highly mutagenic. Some thiocarbamates are acetylcholine esterase inhibitors. Acute exposure to cholinesterase inhibitors can cause a cholinergic crisis characterized by severe nausea/vomiting, salivation, sweating, bradycardia, hypotension, collapse, and convulsions. Increasing muscle weakness is a possibility and may result in death if respiratory muscles are involved.
- Skin corrosion/irritation: No skin irritation ... but irritating to eyes.
- Serious eye damage/eye irritation: No data available.
- Respiratory or skin sensitization: Data concerning the effects of thiocarbamates on man are scarce. However, cases of irritation and sensitization have been observed among agricultural workers. Some thiocarbamates, e.g., molinate, have an effect on sperm morphology and, consequently, on reproduction. However, no teratogenic effects have been observed. The results of mutagenicity studies have shown that thiocarbamates containing dichloroallyl groups are highly mutagenic. Some thiocarbamates are acetylcholine esterase inhibitors. Acute exposure to cholinesterase inhibitors can cause a cholinergic crisis characterized by severe nausea/vomiting, salivation, sweating, bradycardia, hypotension, collapse, and convulsions. Increasing muscle weakness is a possibility and may result in death if respiratory muscles are involved.
- Germ cell mutagenicity: Data concerning the effects of thiocarbamates on man are scarce. However, cases of irritation and sensitization have been observed among agricultural workers. Some thiocarbamates, e.g., molinate, have an effect on sperm morphology and, consequently, on reproduction. However, no teratogenic effects have been observed. The results of mutagenicity studies have shown that thiocarbamates containing dichloroallyl groups are highly mutagenic. Some thiocarbamates are acetylcholine esterase inhibitors. Acute exposure to cholinesterase inhibitors can cause a cholinergic crisis characterized by severe nausea/vomiting, salivation, sweating, bradycardia, hypotension, collapse, and convulsions. Increasing muscle weakness is a possibility and may result in death if respiratory muscles are involved.
- Carcinogenicity: /LABORATORY ANIMALS: Chronic Exposure or Carcinogenicity/ Vernam (vernolate) Technical, 97.4% purity, administered orally in gelatin capsules for 1 year at 0, 5, 20, and 100 mg/kg/day with 5 Beagle dogs/sex/group. NOEL=5 mg/kg/day: the only indications of treatment effects extending down to the LEL of 20 mg/kg/day were slight increases in extent of hemosiderin deposition and extramedullary hematopoiesis in the spleen. At 100 mg/kg/day, there were several findings consistent with anemia and associated enhanced turnover of RBCs: findings included statistically significant decreases in hemoglobin levels, hematocrit, and RBC counts in both sexes; also consistently elevated platelet counts in males; enhanced degree of the above spleen effects; brown pigment accumulation in liver reticuloendothelial cells and in kidney tubular epithelium; and hypercellular sternal

bone marrow. Also, the high dose led to reduced body weights in both sexes (statistically significant in females only), and to significantly elevated liver weights in both sexes, as well as significantly increased spleen and kidney weights in females. Occasional axonal degeneration in cervical and lumbar spinal cord in both sexes was observed in 100 mg/kg/day males and females. Thus there was found a sharp increase in response between 20 and 100 mg/kg/day.
- Reproductive toxicity: Data concerning the effects of thiocarbamates on man are scarce. However, cases of irritation and sensitization have been observed among agricultural workers. Some thiocarbamates, e.g., molinate, have an effect on sperm morphology and, consequently, on reproduction. However, no teratogenic effects have been observed. The results of mutagenicity studies have shown that thiocarbamates containing dichloroallyl groups are highly mutagenic. Some thiocarbamates are acetylcholine esterase inhibitors. Acute exposure to cholinesterase inhibitors can cause a cholinergic crisis characterized by severe nausea/vomiting, salivation, sweating, bradycardia, hypotension, collapse, and convulsions. Increasing muscle weakness is a possibility and may result in death if respiratory muscles are involved. /LABORATORY ANIMALS: Developmental or Reproductive Toxicity/ Rats were randomly assigned to one of four treatment groups (consisting of 15 males and 30 females) on the basis of body weight. Vernam was administered in the diet at the following concentrations: 0, 20, 100 or 500 ppm. An LEL of 100 ppm is based on the statistically significant depression in the mean body weight for both parental males and females. The NOEL for reproductive effects is considered to be 500 ppm, since no effects on mating, fertility, gestational or lactational indices were observed. Urinary tract variants were observed at a varied rate in offsprings; whether this effect is compound-related or due to normal variation is not clear without evaluating historical data on this condition.
- STOT-single exposure: No data available.
- STOT-repeated exposure: /LABORATORY ANIMALS: Chronic Exposure or Carcinogenicity/ Vernam (vernolate) Technical, 97.4% purity, administered orally in gelatin capsules for 1 year at 0, 5, 20, and 100 mg/kg/day with 5 Beagle dogs/sex/group. NOEL=5 mg/kg/day: the only indications of treatment effects extending down to the LEL of 20 mg/kg/day were slight increases in extent of hemosiderin deposition and extramedullary hematopoiesis in the spleen. At 100 mg/kg/day, there were several findings consistent with anemia and associated enhanced turnover of RBCs: findings included statistically significant decreases in hemoglobin levels, hematocrit, and RBC counts in both sexes; also consistently elevated platelet counts in males; enhanced degree of the above spleen effects; brown pigment accumulation in liver reticuloendothelial cells and in kidney tubular epithelium; and hypercellular sternal bone marrow. Also, the high dose led to reduced body weights in both sexes (statistically significant in females only), and to significantly elevated liver weights in both sexes, as well as significantly increased spleen and kidney weights in females. Occasional axonal degeneration in cervical and lumbar spinal cord in both sexes was observed in 100 mg/kg/day males and females. Thus there was found a sharp increase in response between 20 and 100 mg/kg/day.
- Aspiration hazard: No data available.

Likely routes of exposure
- No data available.

Symptoms related to the physical, chemical and toxicological characteristics
- Data concerning the effects of thiocarbamates on man are scarce. However, cases of irritation and sensitization have been observed among agricultural workers. Some thiocarbamates, e.g., molinate, have an effect on sperm morphology and, consequently, on reproduction. However, no teratogenic effects have been observed. The results of mutagenicity studies have shown that thiocarbamates containing dichloroallyl groups are highly mutagenic. Some thiocarbamates are acetylcholine esterase inhibitors. Acute exposure to cholinesterase inhibitors can cause a cholinergic crisis characterized by severe nausea/vomiting, salivation, sweating, bradycardia, hypotension, collapse, and convulsions. Increasing muscle weakness is a possibility and may result in death if respiratory muscles are involved.

SECTION 12: Ecological information

SECTION 12: Ecological information

12.1 Toxicity
- Not available.

12.2 Persistence and degradability
- Not available.

12.3 Bioaccumulative potential
- Not available.

12.4 Mobility in soil
- Not available.

12.5 Results of PBT and vPvB assessment
- Not available.

12.6 Endocrine disrupting properties
- Not available.

12.7 Other adverse effects
- Not available.

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods
- Dispose of contents/container in accordance with local/regional/national/international regulations.
- Do not discharge to drains or the environment.
- Incineration or disposal via a licensed waste contractor may be appropriate.
- Contaminated packaging: Dispose of as unused product unless cleaned/decontaminated in accordance with regulations.

SECTION 14: Transport information

SECTION 14: Transport information

- UN number: Not available.
- UN proper shipping name: Not available.
- Transport hazard class(es): Not available.
- Packing group: Not available.
- Environmental hazards: Not available.
- Special precautions for user: Not available.
- Transport in bulk according to IMO instruments: Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- Regulatory status/inventories: Not available.
- Pesticide regulations: Not available.

15.2 Chemical safety assessment
- Not available.

SECTION 16: Other information

SECTION 16: Other information

- Product name: Vernolate
- CAS No.: 1929-77-7
- Synonyms: S-propyl dipropylcarbamothioate
- Catalog No.: CS-T-46384
- Supplier: Clearsynth Labs Ltd., Mumbai, India
- Emergency phone: +91-22-245045900

Disclaimer:
- The information provided is based on available product identification details and is intended for SDS authoring support. No data available for many hazard and regulatory endpoints; users must verify applicability and compliance with current regulations and any supplier-provided SDS.

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