

MATERIAL SAFETY DATA SHEET

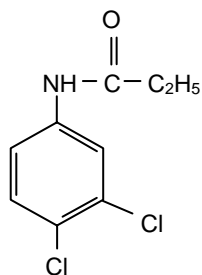
Introductory Details

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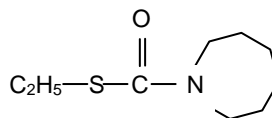
SECTION 1 : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Details

Product Name : Ordram 25% + Propanil 25% SC
Trade Name : ARROSOLO 50% SC
Chemical Name : (1) N-(3,4-Dichlorophenyl)propanamide (Propanil)
(2) S-Ethylhexahydro-1H-azepine-1-carbothioate (Molinate)
Chemical Formula : (1) C₉H₉Cl₂NO
(2) C₂H₅SCONC₆H₁₂
Molar Mass : (1) 218.08
(2) 187
Chemical Family : (1) Anilide compound
(2) Thiocarbamate
Manufacturer's Code : -
Use : Herbicide
Structural Formula :



Propanil



Molinate

1.2 Company Identification

Manufacturer

Name and Address : Agricultural Chemicals (M) Sdn. Bhd.
962, Lorong Perusahaan 8, Taman Perindustrian Perai,
13600 Perai, Pulau Pinang, Malaysia.
Telephone Number : 604-390 7988
Emergency Telephone Number : 604-390 7988

1.3 Contact Point

Designation : Ms. Cheong Wai Ching, Product Support Manager /
En. Ahmad Labib bin Yusof, Administrative Assistant
Tel. No. : 604-390 7988

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SECTION 2 : COMPOSITION/INFORMATION ON INGREDIENT

Chemical Name	CAS No.	Proportion	Exposure Limit	Toxicity Data
N-(3,4-Dichlorophenyl) propanamide	709-98-8	25 %	Refer to Section 9	Refer to Section 11
S-Ethylhexahydro-1H-azepine-1-carbothioate	2212-67-1	25 %		
Surfactant	-	< 25 %		
Water	-	< 30 %		

SECTION 3 : PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Light greyish flowable
Odour : Characteristic odour
Solubility : Miscible with water
Boiling Point (technical) : > 400°C (Propanil)
136.5°C at 10 mmHg (Molinate)
Melting Point (technical) : 85 - 89°C (Propanil)
Vapour Pressure (technical) : 9×10^{-5} mmHg at 60°C (Propanil)
 5.3×10^{-3} mmHg at 25°C (Molinate)
Percentage Volatiles : No data available
Evaporation Rate : No data available
Vapour Density : No data available
Specific Gravity : 1.1 (Product typical value)
Flash Point : No data available
Autoignition temperature : No data available
Flammable Limit : No data available

SECTION 4 : HAZARD IDENTIFICATION

Toxic by inhalation
May cause birth defects
Harmful by inhalation, in contact with skin and if swallowed
Irritating to eyes and skin

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SECTION 5 : FIRST AID MEASURES

- Ingestion : Induce vomiting after drinking 1 or 2 glasses of water. Do not induce vomiting or give anything by mouth to an unconscious patient. Get prompt medical attention.
- Eye contact : Immediately flush with plenty of water. Get medical attention.
- Skin contact : Remove contaminated clothing and wash skin thoroughly with soap and water.
- Inhalation : Remove patient from exposure, keep warm and at rest. Obtain medical attention as a precaution.
- Notes to physician :
- Poisoning symptoms : Local irritation and CNS depression. Gagging, coughing, nausea and vomiting followed by headache, dizziness, drowsiness and confusion.
- Medical treatment : Treatment is symptomatic. If swallowed, gastric lavage should be performed if patient is not vomiting. Apply artificial respiration if necessary. Avoid alcohol, oils, fats or epinephrine. This product contains cholinesterase inhibitor. If symptoms develop, Atropine is antidotal providing it is used as soon as early poisoning symptoms appear.

SECTION 6 : FIRE FIGHTING MEASURES

- Extinguishing Media : CO₂, foam, dry chemical.
- Fire fighting instruction : Fire fighters should wear full-faced self contained breathing apparatus and protective clothing.
- Special hazards : Combustion or thermal decomposition will evolve toxic and irritant vapours such as hydrogen chloride, organic acids and chloroanilines.

SECTION 7 : ACCIDENTAL RELEASE MEASURE

Leak and/or Spill :

Wear protective clothing. Eliminate ignition source. Ventilate area. Absorb spills with inert material such as clay, sand, earth, sawdust etc. and collect in a drum. Cover up the contaminated area with household detergent and small amount of water. Brush the slurry and spread inert absorbents on the slurry liquid and collect the absorbed material in a drum. Seal drum and dispose of. Do not contaminate water resources.

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SECTION 8 : HANDLING AND STORAGE

Handling : Read the label before use. Wear pesticide respiratory masks to avoid breathing vapour; protective gloves, goggles and clothing to avoid contact with skin and eyes.
Storage : Keep in original container, tightly closed, in a cool dry and well-ventilated place, out of reach of children. Keep away from foodstuffs and animal feeds.

SECTION 9 : EXPOSURE CONTROL AND PERSONAL PROTECTION

a. Exposure Limit (Technical) :
Propanil : TWA/TLV 5 mg/m³
(Recommended by Cedar Chemical Corporation)
Not established by OSHA, ACGIH
Molinate Syngenta Standard : 8 hr TWA 0.4 mg/m³
b. Engineering measures : Local exhaust ventilation
c. Personal protection : Wear pesticide respiratory masks, protective gloves, goggles and clothing.

SECTION 10 : STABILITY AND REACTIVITY

Conditions to avoid : Direct sunlight, heat and extreme temperature
Incompatible : Some pesticides, carbamates, some liquid fertilizers and strong oxidizing agents.
Decomposition Products : Combustion or thermal decomposition will evolve toxic and irritant vapours such as hydrogen chloride, organic acids and chloroanilines.
Hazardous polymerization : No data available. No known condition to avoid.
Stability : Stable under normal conditions.

SECTION 11 : TOXICOLOGICAL INFORMATION

Toxicity Data :
Acute Oral LD₅₀ : (Rat) male 582 mg/kg
female 480 mg/kg
Acute Dermal LD₅₀ : (Rabbit) > 2000 mg/kg

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Propanil Technical

Acute Inhalation LC₅₀ : (Rat) > 1239 mg/kg
Eye Irritation : May cause irritation
Skin Irritation : May cause moderate irritation

Molinate Technical

Acute Inhalation LC₅₀ (4 h) : (Rat) male 2.91 mg/l
female 1.39 mg/l
Eye Irritation : Moderate irritant to rabbit
Skin Irritation : Mild irritant to rabbit
Skin Sensitisation : Not sensitising

Carcinogenicity : No data available
Reproductive Effect : No data available
Effects of overexposure : Propanil Technical - Local irritation and CNS depression. Gagging, coughing, nausea, and vomiting followed by headache, dizziness, drowsiness, and confusion.
Chronic effects : Molinate Technical - There is no evidence of mutagenic or clastogenic potential. Studies in animals have shown that repeated doses do not produce teratogenic effects. Studies in animals have shown that repeated doses produce embryo / foetotoxic effects in the presence of maternal toxicity. The no effect level for developmental and maternal toxicity was 35 mg/kg/day rats. The no effect level (rabbit) for development and maternal toxicity was 20 mg/kg/day.
Target organs : No data available
Medical Conditions Generally Aggravated by Exposure : No data available

SECTION 12 : ECOLOGICAL INFORMATION (TECHNICAL)

Mobility & Bioaccumulation : Molinate Technical
Predicted to have moderate mobility in soil.
Low potential for bioaccumulation.
Biodegradability : Molinate Technical
Water degradability : 1.7%
Period : 28 days
Not readily biodegradable.
Predicted to have moderate mobility in soil.
There is evidence of degradation in soil.
Substantially biodegradable in soil.

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Aquatic toxicity :

Propanil Technical

Static acute LC₅₀ : (Carp) 15 ppm
(Daphnia) 4.8 mg/l

Molinate Technical

LC₅₀ (96h) : (Rainbow trout) 16 mg/l
EC₅₀ (48h) : (Daphnia magna) 15 mg/l
EbC₅₀ (96h) : (Green algae) 0.22 mg/l
ErC₅₀ (96h) : (Green algae) 0.5 mg/l

Very toxic to aquatic organisms.

SECTION 13 : DISPOSAL INFORMATION

Dispose of according to local regulation.

SECTION 14 : TRANSPORT INFORMATION

Follow the precaution indicated in the storage and handling section. Follow all regulations in your country.

SECTION 15 : REGULATORY INFORMATION

Pesticides Act : Class II - Poisonous

CPL Regulation : Class - Toxic

Risk Phrases : R23 Toxic by inhalation
R47 May cause birth defects
R20/21/22 Harmful by inhalation, in contact with skin and if swallowed
R36/38 Irritating to eyes and skin

Safety Phrases : S1/2 Keep locked up and out of reach of children.
S13 Keep away from food, drink and animal feeding stuff
S38 In case of insufficient ventilation, wear suitable respiratory equipment
S44 If you feel unwell, seek medical advice (show the label where possible)
S53 Avoid exposure - obtain special instruction before use

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SECTION 16 : OTHER INFORMATION

Reference : (a) Material Safety Data Sheet - Arrosolo 50% SC

Date : 3-7-2001

(b) Material Safety Data Sheet - DCPA Technical (Propamil)

Date revised : 22 November 2007

(c) Material Safety Data Sheet - Ordram Technical (Molinate)

Date : 3rd March 2002

(d) Guidelines for The Classification of Hazardous Chemicals, DOSH 1997

(e) Guidelines for The Formulation of A Chemical Safety Data Sheet, DOSH 1997

(f) Guidelines for Labelling of Hazardous Chemicals, DOSH 1997

To the best of our knowledge, the information contained herein is accurate. However, we cannot assume any liability whatsoever for the accuracy or completeness of the information contained herein.