

# MATERIAL SAFETY DATA SHEET

## Introductory Details

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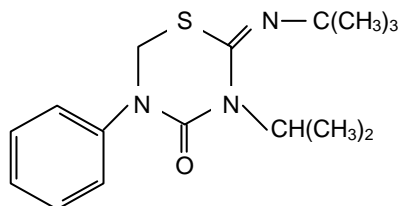
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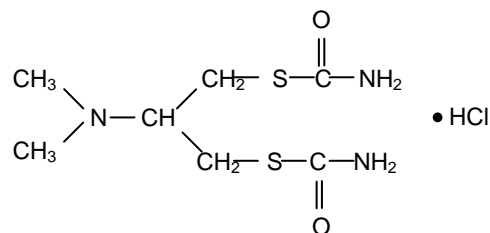
## SECTION 1 : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product Details

Product Name : Buprofezin 10% + Cartap hydrochloride 50% WP  
Trade Name : TAPISAN  
Chemical Name : (1) 2-tert-butylimino-3-isopropyl-5-phenylperhydro-1,3,5-thiadiazin-4-one  
(2) S,S'-2-dimethylaminotrimethylene bis(thiocarbamate) hydrochloride  
Chemical Formula : (1) C<sub>16</sub>H<sub>23</sub>N<sub>3</sub>OS  
(2) C<sub>7</sub>H<sub>16</sub>ClN<sub>3</sub>S<sub>2</sub>O<sub>2</sub>  
Molar Mass : (1) 305.4  
(2) 273.8  
Chemical Family : (1) Insect growth regulator  
(2) Thiocarbamate compound  
Manufacturer's Code : -  
Use : Insecticide  
Structural Formula :



*Buprofezin*



*Cartap Hydrochloride*

### 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
2-tert-butylimino-3-isopropyl-5-phenylperhydro-1,3,5-thiadiazin-4-one	69327-76-0	10 %	Refer to Section 9	Refer to Section 11
S,S'-2-dimethylamino trimethylene bis(thiocarbamate) hydrochloride	15263-53-3	50 %		
Surfactant	-	< 10 %		
Others	-	Balance		

## SECTION 3 : PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Off-white to beige wettable powder
Odour	: Characteristic odour
Solubility	: Dispersible in water
Boiling Point	: No data available
Melting Point (technical)	: 104.5 - 105.5°C (Buprofezin) 187.8°C (Cartap hydrochloride)
Vapour Pressure (technical)	: $9.4 \times 10^{-6}$ mmHg at 25°C (Buprofezin) $2.5 \times 10^{-5}$ Pa at 25°C (Cartap hydrochloride)
Percentage Volatiles	: No data available
Evaporation Rate	: No data available
Vapour Density	: No data available
Specific Gravity (technical)	: 1.18 at 20°C (Buprofezin) $1.39 \text{ g/cm}^3$ at 20°C (Cartap hydrochloride)
Flash Point	: No data available
Autoignition Temperature	: No data available
Flammable Limit	: No data available

## SECTION 4 : HAZARD IDENTIFICATION

Harmful in contact with skin and if swallowed  
Irritating to eyes, respiratory system and skin  
Risk of serious damage to eyes

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## SECTION 5 : FIRST AID MEASURES

- Ingestion : Induce vomiting after drinking large quantity 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. If irritation persists, get medical attention.
- Inhalation : Remove patient from exposure, keep warm and at rest. Obtain medical attention as a precaution.
- Notes to physician :
- Poisoning symptoms : Diarrhoea, lacrimation, decrease of locomotive movement, nausea, salivation spasms, dyspnea and mydriasis.
- Medical treatment : Treatment is symptomatic. An intravenous injection of L-cysteine, dose of 100 mg is recommended.

## SECTION 6 : FIRE FIGHTING MEASURES

- Extinguishing Media : CO<sub>2</sub>, foam, dry powder, water fog, sand or earth. Do not use a water jet.
- Fire fighting instruction : Fire fighters should wear full-faced self contained breathing apparatus and protective clothing.
- Special hazards : Combustion will evolve toxic vapours such as carbon dioxide, carbon monoxide, nitrogen oxides and sulfur oxides.

## SECTION 7 : ACCIDENTAL RELEASE MEASURE

Leak and/or Spill :

Wear protective clothing as indicated in Section 8. Evacuate non essential personnel. Collect the spill into waste container for disposal. Wash the contaminated area with a little water and detergent. Adsorb with inert material such as clay or earth. Collect into the same container for disposal. Prevent the spillage from entering local drainage system.

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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

Exposure limit : (Buprofezin Technical) Japan Association of Industrial Health : 2 mg/m<sup>3</sup>

Engineering measures : Local exhaust ventilation

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 : No data available

Decomposition Products : Combustion will evolve toxic vapours such as carbon dioxide, carbon monoxide, nitrogen oxides and sulfur oxides.

Hazardous polymerization : Will not occur.

Stability : Stable under normal conditions.

Dust explosion : Possible (40 mg/l by Hartmann method; Buprofezin)  
120 - 135 mg/l (Cartap hydrochloride)

Corrosive properties : Cartap hydrochloride will corrode iron, copper and zinc.

## SECTION 11 : TOXICOLOGICAL INFORMATION

Toxicity Data :

Acute Oral LD <sub>50</sub>	: (Rat) male	209 mg/kg
	female	289 mg/kg
Acute Dermal LD <sub>50</sub>	: (Rat) male	1326 mg/kg
	female	1083 mg/kg

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### Buprofezin Technical

Acute Oral LD<sub>50</sub> : (Rat) male 2198 mg / kg  
female 2355 mg / kg  
Acute Dermal LD<sub>50</sub> : (Rat) male, female > 5,000 mg / kg  
Acute Inhalation LD<sub>50</sub> : (Rat) male, female > 4.57 mg/L/4hr

### Cartap Hydrochloride Technical

Acute Oral LD50 : (Rat) male 345mg/kg  
female 325mg/kg  
(Mice) male 150mg/kg  
female 154mg/kg  
Acute Dermal LD50 : (Rat) >2,000mg/kg  
Acute Inhalation LC50 : (Rat) 5.7mg/L (4hours)

Carcinogenicity : Buprofezin Technical  
Not carcinogen. Buprofezin did not produce genetic changes in rec-assay and Ames test.

### Cartap Hydrochloride Technical

No oncogenic effects were observed in 2-year rat or 18-month mouse feeding studies.

Reproductive Effect : Buprofezin Technical  
No birth defects were noted in rats and rabbits given buprofezin orally during pregnancy even at amount which produced body weight depression on the mothers. No effects were observed on the ability of male and female rats to reproduce when fed buprofezin for 2 successive generations.

### Cartap Hydrochloride Technical

No adverse effect on reproductive performance in rats was observed.

Effects of overexposure: Buprofezin Technical  
- Eye Contact (Rabbit) Slightly irritating  
- Skin Contact (Rabbit) Slightly irritating  
- Sensitization (Guinea pig) Negative

### Cartap Hydrochloride Technical

- Skin Irritation Irritant to rabbit skin  
- Eye Irritation Irritant to rabbit eyes  
- Sensitization No skin sensitization was induced in guinea pig

Mutagenicity : Cartap Hydrochloride Technical  
Not mutagenic in Ames bacterial assay, and DNA repair assay and in vivo chromosomal aberration test in mice.

Teratogenicity : Cartap Hydrochloride Technical  
No teratogenic effects on rats and rabbits were observed.

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Chronic effects : Buprofezin Technical  
Rats fed buprofezin for 2 years showed body weight depression.  
Cartap Hydrochloride Technical  
Subchronic Toxicity NOEL : 15mg/kg/day in 3-month rat feeding studies  
Chronic Toxicity NOEL : 10mg/kg/day in 2-year rat feeding studies

Target organ : Buprofezin Technical  
Organ toxicity was not observed in rats fed with buprofezin.

Medical Conditions Generally Aggravated by Exposure : No data available

## SECTION 12 : ECOLOGICAL INFORMATION (TECHNICAL)

Mobility & Bioaccumulation : No data available

Biodegradability : No data available

Aquatic toxicity :

Buprofezin Technical

LC<sub>50</sub> (48h) : (Carp) 2.7 mg/l

LC<sub>50</sub> (3h) : (Daphnia) 50.6 mg/l

Cartap Hydrochloride Technical

Acute Toxicity LC50 (96h) : Carp 0.6mg/L

Acute Toxicity LC50 (48h) : Loach 0.13mg/L

Acute Toxicity EC50 (48h) : *Daphnia magna* 0.065mg/L

Ecotoxicity : Toxic to silkworms

## 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 III- Harmful

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CPL Regulation : Class - Harmful

Risk Phrases : R21/22 Harmful in contact with skin and if swallowed  
R36/37/38 Irritating to eyes, respiratory system and skin  
R41 Risk of serious damage to eyes

Safety Phrases : S2 Keep out of reach of children  
S13 Keep away from food, drink and animal feeding stuff  
S22 Do not breathe dust  
S24/25 Avoid contact with skin and eyes

## **SECTION 16 : OTHER INFORMATION**

Reference : (a) Material Safety Data Sheet - Tapisan  
Date : 24-9-1998  
(b) Material Safety Data Sheet - Applaud Technical (Buprofezin)  
Date : 1 October 2007  
(c) Material Safety Data Sheet - Padan Technical (Cartap hydrochloride)  
Date : 25 February 2008  
(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  
(g) Toxicological Report On Acute Oral And Acute Dermal Toxicity Of Tapisan In Rats,  
Universiti Sains Malaysia - Ref: PPSF/TR/1058

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.