

MATERIAL SAFETY DATA SHEET

Introductory Details

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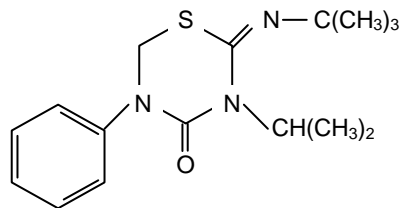
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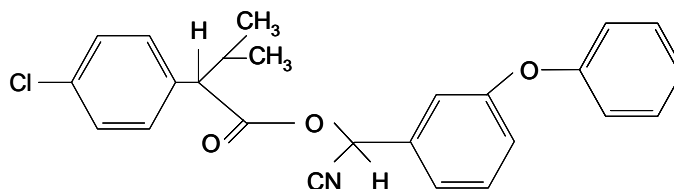
SECTION 1 : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Details

Product Name	: Buprofezin 5.0% + Esfenvalerate 5%
Trade Name	: SARZORIN / SARZORIN EC
Chemical Name	: (1) 2-tert-Butylimino-3-isopropyl-5-phenylperhydro 1,3,5-thiadiazin-4-one (Buprofezin) (2) Esfenvalerate (Total isomer) S,S-isomer, (S)-alpha-Cyano-3-phenoxybenzyl (S)-2-(4- chlorophenyl)-3-methylbutyrate R,S-isomer, (R)-alpha-Cyano-3-phenoxybenzyl (S)-2-(4- chlorophenyl)-3-methylbutyrate S,R-isomer, (S)-alpha-Cyano-3-phenoxybenzyl (R)-2-(4- chlorophenyl)-3-methylbutyrate R,R-isomer, (R)-alpha-Cyano-3-phenoxybenzyl (R)-2-(4- chlorophenyl)-3-methylbutyrate
Chemical Formula	: (1) C ₁₆ H ₂₃ N ₃ OS (2) C ₂₅ H ₂₂ ClNO ₃
Molar Mass	: (1) 305.4 (2) 419.9
Chemical Family	: (1) Insect Growth Regulator (2) Pyrethroid
Manufacturer's Code	: -
Use	: Insecticide
Structural Formula	:



Buprofezin



Esfenvalerate

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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

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 (Buprofezin)	69327-76-0	5.0 %	Refer to Section 9	Refer to Section 11
Esfenvalerate (Total isomer)	66280-04-4	5.0 %		
Surfactant	-	< 10 %		
Solvent	-	Balance		

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SECTION 3 : PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Yellowish liquid
Odour	: Characteristic odour
Solubility	: Miscible with water
Boiling Point (technical)	: 250°C / 0.7 kPa (Esfenvalerate)
Melting Point (technical)	: 104.5°C - 105.5°C (Buprofezin) 59.1°C - 60.1°C (Esfenvalerate)
Vapour Pressure (technical)	: 9.4×10^{-6} mmHg at 25°C (Buprofezin) 1.17×10^{-9} Pa at 20°C (Esfenvalerate) 2.84×10^{-9} Pa at 25°C (Esfenvalerate)
Percentage Volatiles	: No data available
Evaporation Rate	: No data available
Vapour Density	: No data available
Specific Gravity (technical)	: 1.18 at 20°C (Buprofezin)
Flash Point	: 29°C
Autoignition temperature (technical)	: 420°C (Esfenvalerate)
Flammable Limit	: No data available
Density	: 0.9 g/cm^3

SECTION 4 : HAZARD IDENTIFICATION

Flammable.
Harmful if swallowed.
Irritating to eyes.

SECTION 5 : FIRST AID MEASURES

Ingestion	: 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. Get medical attention if irritation persists.
Inhalation	: Remove patient from exposure, keep warm and at rest. Obtain medical attention as a precaution.
Notes to physician	:
Poisoning symptoms	: Muscular fibrillation, tremor, ataxia, limb paralysis, irregular respiration, salivation, urinary incontinence, hyperexcitability, choreoathetotic syndrome and

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decrease of spontaneous activity.

SECTION 6 : FIRE FIGHTING MEASURES

- Extinguishing Media : CO₂, foam, dry powder, water spray.
Fire fighting instruction : Fire fighters should wear full-faced self contained breathing apparatus and protective clothing.
Special hazards : Evolve toxic and corrosive products such as NO_x, HCl, HCN CO and CO₂ upon combustion.

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.

SECTION 8 : HANDLING AND STORAGE

- Handling : Read the label before use. Wear pesticide respiratory masks, goggles, protective gloves and clothing while handling.
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 (Technical) :
Buprofezin : Japan Association of Industrial Health - 2 mg / m³
Esfenvalerate : No exposure limit has been established for this material
Engineering measures : Local exhaust ventilation
Personal protection : Wear pesticide respiratory masks, goggles, protective gloves and clothing.

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SECTION 10 : STABILITY AND REACTIVITY

Conditions to avoid	: Direct sunlight, heat and extreme temperature
Incompatible	: Alkaline materials, oxidizing agents and concentrated acids.
Decomposition Products	: Hydrochloric Acid (HCl), Hydrogen Cyanide (HCN), Carbon Monoxide (CO) (in contact with open fire).
Hazardous polymerization	: No data available.
Stability	: Stable under normal conditions.

SECTION 11 : TOXICOLOGICAL INFORMATION

Toxicity Data :

Acute Oral LD ₅₀	: (Rat) male	696 mg/kg
	female	490 mg/kg
Acute Dermal LD ₅₀	: (Rat) male & female	> 2000 mg/kg

Buprofezin Technical

Acute Inhalation LD ₅₀	: (Rat) male, female	> 4.57 mg/L/4hr
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Esfenvalerate Technical

Acute Inhalation LC ₅₀ (4 hr)	: (Rat) male	0.48 mg/l
	female	0.57 mg/l

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

Reproductive effect : (Buprofezin) 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.

Effects of overexposure : Buprofezin Technical

Eye Contact (Rabbit) Slightly irritating

Skin Contact (Rabbit) Slightly irritating

Sensitization (Guinea pig) Negative

Esfenvalerate Technical

Eye Irritation Irritating

Skin Irritation Irritating

Skin Sensitisation Negative Buehler and positive Maximization test

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Chronic effects : Rats fed buprofezin for 2 years showed body weight depression.
Target organs : 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

LC₅₀ (48 hr) carp : 2.7 mg/l
LC₅₀ (3 hr) daphnia : 50.6 mg/l

Esfenvalerate Technical

LC₅₀ (96hr) : Fish (*Oncorhynchus mykiss*) 0.1 µg/l (Flow through)
EC₅₀ (48h) : *Daphnia magna* 0.9 µg/l (Static)
LC₅₀ (96h) : Algae (*Scenedesmus subspicatus*) 6.5 µg/l

Very toxic to aquatic organism.

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
CPL Regulation : Class - Flammable, Harmful

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Risk Phrases : R10 Flammable
R22 Harmful if swallowed
R36 Irritating to eyes

Safety Phrases : S2 Keep out of reach of children
S13 Keep away from food, drink and animal feeding stuff
S36/37/39 Wear suitable protective clothing, gloves and eyes/face protection

SECTION 16 : OTHER INFORMATION

Reference : (a) Material Safety Data Sheet - Sarzorin
Date : 29-5-2003

(b) Material Safety Data Sheet - Applaud Technical (Buprofezin)
Date : 1 October 2007

(c) Material Safety Data Sheet - Sumi-Alpha Technical (Esfenvalerate)
Date : 16 May 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

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.