

MATERIAL SAFETY DATA SHEET

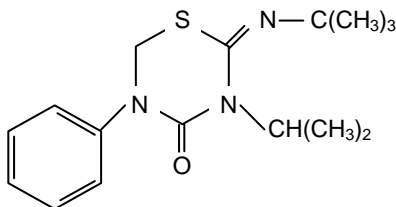
Introductory Details

Page 1 of total 7
Date of preparation : 4 May 2005
Date revised : 4 October 2007

SECTION 1 : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Details

Product Name : Buprofezin 25% Suspension Concentrate
Trade Name : LANMERTIN
Chemical Name : 2-tert-butylimino-3-isopropyl-5-phenylperhydro-1,3,5-thiadiazin-4-one (IUPAC)
Common Name : Buprofezin (active ingredient)
Classification of AI : Insect Growth Regulator
Chemical Formula : C₁₆H₂₃N₃OS
Molar Mass : 305.4
Chemical Family : Thiadiazine compound
Manufacturer's Code : -
Use : Insecticide
Chemical Structure :



Buprofezin

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

MATERIAL SAFETY DATA SHEET

Introductory Details

Page 2 of total 7

Date of preparation : 4 May 2005

Date revised : 4 October 2007

SECTION 2 : COMPOSITION/INFORMATION ON INGREDIENT

Chemical Name	CAS No.	Proportion	Exposure Limit	Toxicity Data
2-tert-butylimino-3-iso propyl-5 phenylperhydro- 1,3,5-thiadiazin-4-one	69327-76-0	25%	Refer to Section 9	Refer to Section 11

SECTION 3 : PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: White suspension
Odour	: Characteristic odour
Solubility	: Dispersible in water 0.9mg/L @ 25°C (Buprofezin)
Boiling Point	: No data available
Melting Point	: 104.5-105.5 (Buprofezin)
Vapour Pressure	: 9.4×10^{-6} mmHg @ 25°C (Buprofezin)
Percentage Volatiles	: No data available
Evaporation Rate	: No data available
Vapour Density	: No data available
Specific Gravity	: 1.0 - 1.1
Flash Point	: Not applicable
Autoignition temperature	: No data available
Flammable limit (%)	: No data available
Partition coefficient	: $\log P_{o/w} = 4.3$ (Buprofezin)

SECTION 4 : HAZARD IDENTIFICATION

Harmful by inhalation.
Irritating to skin.

MATERIAL SAFETY DATA SHEET

Introductory Details

Page 3 of total 7

Date of preparation : 4 May 2005

Date revised : 4 October 2007

SECTION 5 : FIRST AID MEASURES

- Ingestion : Never induce vomiting if the patient is unconscious. If patient is conscious, induce vomiting after drinking water. Obtain medical attention.
- Eye contact : Rinse under running water for at least 15 minutes. Obtain medical attention.
- Skin contact : Remove contaminated clothing and wash skin thoroughly with soap and plenty of water. Wash contaminated clothing before reuse.
- Inhalation : Remove patient from exposure, keep at rest. Obtain medical attention as a precaution.

Notes to physician :

During the toxicological testing using Applaud 250g/L SC, clinical symptoms were considered to results from the use of an occlusive dressing observed on Day 1 and 3. Signs observed were diarrhoe, stains around the nose and signs on urinary incontinence.

SECTION 6 : FIRE FIGHTING MEASURES

- Extinguishing Media : Foam, CO₂, dry chemical.
- Fire fighting instruction : Fire fighters shall wear full-faced self-contained breathing apparatus and protective clothing
- Special hazards : Hazardous combustion products are carbon dioxide, carbon monoxide, nitrogen oxides and sulfur oxide.

SECTION 7 : ACCIDENTAL RELEASE MEASURE

Leak and/or Spill :

Wear protective clothing as indicated in Section 8. Evacuate non essential personnel. Adsorb the spillage with inert material such as clay, sand, white carbon etc. Collect the adsorbed material into a clean container for disposal as scheduled waste. Wash the contaminated area with a little water and detergent. Adsorb adsorb with inert material and collect into the same container. Wash the area and drain the water to Wastewater Treatment Plant.

SECTION 8 : HANDLING AND STORAGE

- Handling : Wear protective clothing such as impervious gloves, respiratory mask and goggles. Read the label before use.

MATERIAL SAFETY DATA SHEET

Introductory Details

Page 4 of total 7

Date of preparation : 4 May 2005

Date revised : 4 October 2007

Storage : Keep in original container, tightly closed, out of reach of children. Keep away from foodstuffs and animal feeding stuffs. Avoid extreme temperature.

SECTION 9 : EXPOSURE CONTROL AND PERSONAL PROTECTION

a. Exposure Limit : 2 mg/m³ (JAIH)
1 mg/m³ (NICHINO)

The exposure limit is based on Buprofezin technical material

JAIH : Japan Association of Industrial Health

NICHINO : Nihon Nohyaku Exposure Limit

b. Engineering measures : General ventilation, local exhaust ventilation

c. Personal protection : Wear pesticide respirator mask, chemical safety goggles, protective gloves and clothing.

SECTION 10 : STABILITY AND REACTIVITY

Conditions to avoid : Direct sunlight, heat and extreme temperature

Incompatible : No data available

Decomposition Products : May evolve carbon monoxide and nitrogen oxides upon combustion.

Hazardous polymerization : None

Stability : Stable under normal conditions.

SECTION 11 : TOXICOLOGICAL INFORMATION

Toxicity Data (Applaud 250g/L SC)

Acute Oral LD₅₀ : (Rat) > 2,000 mg/kg

Acute Dermal LD₅₀ : (Rat) > 2,000 mg/kg

Inhalation LC₅₀ : (Rat) male > 4.57 mg/L (4 hr) (based on Buprofezin)

Eye Irritation : Irritating (by CPL calculation)

Skin Irritation : Irritating (by CPL calculation)

MATERIAL SAFETY DATA SHEET

Introductory Details

Page 5 of total 7

Date of preparation : 4 May 2005

Date revised : 4 October 2007

Carcinogenicity : Not carcinogen
Reproductive Effect : No effect
Effects of overexposure : No data available
Chronic effects : Buprofezin did not produce genetic changes in rec-assay and Ames test.
Target organs : Organ toxicity in rat was not observed.
Medical Conditions Generally Aggravated by exposure : No data available

Buprofezin:

In repeated dosing study for 13 weeks, rat fed buprofezin exhibited body weight depression, increase of relative liver weight and enlargement of hepatocyte. Dogs fed buprofezin for 2 years exhibited body weight depression, and increase of serum alkaline phosphatase activity and relative liver weight. Rat fed buprofezin for 2 years showed body weight depression. Any clinical parameters showing organ toxicity were not observed. In histopathological examination, an enlargement of hepatocyte and increase of smooth-surfaced endoplasmic reticulum. Buprofezin did not produce tumor in both sexes of rat.

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 seen on the ability on male and female rats to reproduce when fed buprofezin for 2 successive generations.

Buprofezin did not produce genetic changes in rec-assay and Ames test. In safety pharmacology studies, buprofezin showed any specific pharmacological effects.

SECTION 12 : ECOLOGICAL INFORMATION

Mobility & Bioaccumulation : No data available

Biodegradability : No data available

Aquatic Toxicity :

LC₅₀ (96 hours) : (Rainbow trout - *Salmo gairdneri*) > 630 mg/l
\$630 mg/l (NOEL)

EC₅₀ (96 hours) : (*Daphnia Magna*) > 234 mg/L
\$234 mg/l (NOEL)

SECTION 13 : DISPOSAL INFORMATION

Dispose of according to applicable national environment laws and / or local regulation.

MATERIAL SAFETY DATA SHEET

Introductory Details

Page 6 of total 7
Date of preparation : 4 May 2005
Date revised : 4 October 2007

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 Regulations : Class – Harmful, Irritant

Risk Phrases : R20 Harmful by inhalation.
R38 Irritating to skin.

Safety Phrases : S1/2 Keep out of reach of children
S36/37/39 Wear suitable protective clothing, gloves and eye protection

SECTION 16 : OTHER INFORMATION

Reference : (a) Applaud 250 g/L SC information from NNKK
Report No. : CTL/P/1822
Buprofezin : Acute Oral Toxicity
Date of Issue : 12 May 1987

Report No. : CTL/P/1817
Buprofezin : Acute Dermal Toxicity
Date of Issue : 12 May 1987

Project Identification No. : S314/B (FT 36/89)
Acute toxicity to rainbow trout
Date : 15 September 1989

Report Series : RJ0897B
Acute toxicity to *Daphnia magna*
Date of Issue : 28 June 1991

MATERIAL SAFETY DATA SHEET

Introductory Details

Page 7 of total 7

Date of preparation : 4 May 2005

Date revised : 4 October 2007

- (b) Material Safety Data Sheet - Applaud Technical
Date of preparation : 11th April 2002
- (c) Material Safety Data Sheet - Applaud Technical
Nihon Nohyaku Co., Ltd.
MSDS number : 940-10
Date : January 16, 1996
- (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.