

MATERIAL SAFETY DATA SHEET



Date of Issue: January 9th, 2009

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name Zorro[®] Cereal Seed Treatment
Other names None
Product code and pack sizes 3079833 (20 L), 6462774 (100 L)
Chemical group Chloronicotinyl and triazole
Recommended use Agricultural insecticide and fungicide for seed treatment
Formulation Flowable concentrate for seed treatment
Supplier Bayer CropScience Pty Ltd ABN 87 000 226 022
Address 391 - 393 Tooronga Road, East Hawthorn
Victoria 3123, Australia
Telephone (03) 9248 6888
Facsimile (03) 9248 6800
Website www.bayercropscience.com.au
Contact Development Manager (03) 9248 6888
Emergency telephone number 1800 033 111 – Orica SH&E Shared Services

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW HAZARDOUS SUBSTANCE (see Risk phrases below) – NON DANGEROUS GOOD

Hazard classification Hazardous (National Occupational Health and Safety Commission - NOHSC)
Risk phrases R22 – Harmful if swallowed.
Safety phrases See Sections 4, 5, 6, 7, 8, 10, 12, 13
ADG classification Not classified as a "Dangerous good" for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.
SUSDP classification Schedule 5 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Imidacloprid	[138261-41-3]	180
Triadimenol	[55219-65-3]	56.3
Benzylhemiformal	[14548-60-8]	1
Other ingredients, including emulsifiers, stabilisers, thickeners and water	Non-hazardous	883

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4. FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (telephone 13 11 26), and follow the advice given. Show this Material Safety Data Sheet to the doctor.

Inhalation	If inhaled, remove to fresh air and keep warm and at rest. Seek medical advice if at all worried.
Skin contact	Carefully remove contaminated clothing. Wash affected areas with soap and water. Seek medical advice if at all worried.
Eye contact	Rinse eyes immediately with clean water for at least 15 minutes. Consult an eye specialist.
Ingestion	Obtain immediate medical advice as above.
First aid facilities	Provide washing facilities in the workplace.
Medical attention	Zorro contains 2 active ingredients: Imidacloprid which belongs to the chloronicotinyl or neonicotinoid chemical group, and Triadimenol which is a triazole compound.

Symptoms

Apathetic state, depressed muscular tone, respiratory disturbances, hypothermia, trembling, and impaired papillary function. Muscular cramps are also possible in severe cases of poisoning.

Treatment

As there is no antidote, treatment has to be symptomatic and supportive. Gastric lavage should be considered in cases of significant ingestions within the first 2 hours. Administration of activated charcoal and sodium sulfate is advisable with significant ingestions.

5. FIRE FIGHTING MEASURES

Extinguishing media	Sprayed water jet, foam, extinguishing powder, carbon dioxide, sand.
Hazards from combustion products	In a fire, formation of hydrogen chloride, hydrogen cyanide, carbon monoxide and nitrogen oxides can be expected.
Precautions for fire fighters	Firefighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). Keep unnecessary people away. If it can be done safely, remove intact containers from the fire. Otherwise, use water spray to cool them. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of fire control water or other extinguishing agent and spillage safely later. Do not release contaminated water into the environment.
Hazchem code	Not applicable

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6. ACCIDENTAL RELEASE MEASURES

Avoid contact with the spilled material or contaminated surfaces. When dealing with spills do not eat, drink or smoke and wear protective clothing and equipment as described in Section 8 - PERSONAL PROTECTION. Prevent spilled material from entering drains or watercourses. Contain spill and absorb with earth, sand, clay, or other absorbent material. Collect and store in properly labelled, sealed drums for safe disposal. Clean floor and all contaminated objects with damp cloth. Place used cleaning materials into the drum for disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority.

7. HANDLING AND STORAGE

Handling Keep out of reach of children. When opening the container and loading wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow-length PVC gloves. Wash hands after use. After each day's use, wash gloves, goggles and contaminated clothing.

Storage Store in the closed, original container in a cool, dry, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store treated seed in clearly marked bags or silos, away from other grain, animal feed or foodstuffs, in a cool, dry storage area. Bags which have held treated seed should not be used for any other purpose.

Flammability Not flammable – water based product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards No exposure standards have been assigned.

Biological limit values None allocated

Engineering controls Control process conditions to avoid contact. Use in a well-ventilated area only.

Personal protective equipment

- Wear goggles if exposure is likely.
- Wear cotton overalls buttoned to the neck and wrist and a washable hat.
- Wear elbow-length PVC gloves.
- Workers exposed to grain dust should wear a disposable dust mask.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Green liquid suspension
Odour: Slight characteristic
pH: 6.0 – 8.0 (undiluted)
Vapour pressure: 4×10^{-7} mPa at 20 °C (imidacloprid); $4 - 6 \times 10^{-4}$ mPa at 20 °C (triadimenol)
Vapour density: Not available
Boiling point: Not available
Freezing/melting point: Not available
Solubility: Miscible with water
Specific gravity: 1.12 at 20 °C
Flash point: No flash point up to 100 °C
Flammability (explosive) limits: Not applicable

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9. PHYSICAL AND CHEMICAL PROPERTIES - continued

Auto-ignition temperature:	Not available
Partition coefficient (octanol/water):	<i>Imidacloprid</i> : Log P _{ow} = 0.57 (21 °C) <i>Triadimenol</i> : Log P _{ow} = 3.08 – 3.28 (25 °C)

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use.
Conditions to avoid	Extreme heat
Incompatible materials	Strong oxidising agents.
Hazardous decomposition products	Hydrogen chloride, hydrogen cyanide, carbon monoxide and oxides of nitrogen may be evolved upon heating.
Hazardous reactions	None

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	May be harmful if inhaled.
Skin contact	May irritate skin.
Eye contact	May irritate eyes.
Ingestion	Harmful if swallowed.

ANIMAL TOXICITY DATA – SIMILAR PRODUCT

<u>Acute:</u> Oral toxicity	LD ₅₀ rat (male): 1400 - 1500 mg/kg; LD ₅₀ rat (female): 1530 mg/kg
Dermal toxicity	LD ₅₀ rat: > 5000 mg/kg (<i>derived from active ingredient data and test results of a similar product</i>)
Inhalation toxicity	LC ₅₀ > 1.146 mg/L, aerosol (4 h) (highest attainable concentration)
Skin irritation	Not irritating (rabbit)
Mucous membrane irritation	Not irritating (rabbit)
Sensitisation	Non-sensitising (guinea pig) (Beuhler patch test)

Chronic:

Animal studies with imidacloprid and with triadimenol showed no evidence of oncogenic effects, no evidence of carcinogenic effects and no teratogenic potential. Triadimenol was not mutagenic.

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12. ECOLOGICAL INFORMATION

Imidacloprid is toxic to certain aquatic species. It is dangerous to bees. Triadimenol is harmful to aquatic organisms and may cause long term adverse effects in the aquatic environment. It is non toxic to honey bees.

DO NOT contaminate streams, rivers or waterways with Zorro Cereal Seed Dressing, used containers or bags which have held treated seed. DO NOT feed treated seed or otherwise expose wildlife or domestic birds. DO NOT allow seed treated with this product to contaminate seed intended for human or animal consumption.

Ecotoxicity

Imidacloprid:

Fish toxicity: LC₅₀ (96 h): 237 mg/L golden orfe (*Leuciscus idus melanotis*)
LC₅₀ (96 h): 211 mg/L rainbow trout (*Oncorhynchus mykiss*)
Daphnia toxicity: LC₅₀ (48 h): 85 mg/L
Algae toxicity: E_rC₅₀ (72 h): > 100 mg/L (*Pseudokirchneriella subcapitata*)
Bacteria toxicity: EC₅₀: > 10000 mg/L activated sludge
Bird toxicity: LD₅₀: 31 mg/kg Japanese quail
LD₅₀: 152 mg/kg bobwhite quail

Triadimenol:

Fish toxicity: LC₅₀ (96 h): 21.3 mg/L rainbow trout (*Oncorhynchus mykiss*)
LC₅₀ (96 h): 17.4 mg/L golden orfe (*Leuciscus melanotis*)
Daphnia toxicity: EC₅₀ (48 h): 51 mg/L *Daphnia magna*
Algae toxicity: E_rC₅₀: 3.7 mg/L green alga (*Desmodesmus subspicatus*)
Bacteria toxicity: EC₅₀: > 10000 mg/L activated sludge microorganism
Bird toxicity: LD₅₀: > 2000 mg/kg bobwhite quail

Environmental fate, persistence and degradability

Imidacloprid shows a medium adsorption to soil. Classified as immobile in soil. Not expected to leach. Triadimenol: DT₅₀ in sandy loam 110-375 days; in loam 240-270 days.

13. DISPOSAL CONSIDERATIONS

When returnable container is empty or contents no longer required return it to the point of purchase. For non-returnable containers, triple or (preferably) pressure rinse them before disposal. Do not dispose of undiluted chemicals on-site. Break, crush, or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Dispose of waste product through a reputable waste contractor. Do not re-use empty containers for any other purpose.

14. TRANSPORT INFORMATION

UN number	Not applicable
Proper shipping name	Not applicable
Class and subsidiary risk	Not applicable
Packing group	Not applicable
EPG	Not applicable
Hazchem code	Not applicable
Marine pollutant	No

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15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994
Australian Pesticides and Veterinary Medicines Authority approval number: 56152

See also Section 2.

16. OTHER INFORMATION

Trademark information Zorro[®] is a Registered Trademark of Bayer.

Preparation information Replaces January 19, 2005 edition.
Reasons for update: Formulation composition, Medical attention, Ecological information.

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

END OF MSDS