

MATERIAL SAFETY DATA SHEET



Date of Issue: May 30, 2006

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name Amparo® Seed Treatment Insecticide
Other names None
Product codes and pack sizes 100 L (code not available), 6135497 (1000 L)
Chemical group Chloronicotinyl + oxime carbamate
Recommended use Agricultural insecticide used as a seed treatment
Formulation Flowable concentrate for seed treatment (FS)
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) – DANGEROUS GOOD
Harmful to aquatic organisms

Hazard classification Hazardous (National Occupational Health and Safety Commission - NOHSC)

Risk phrases R20/22 - Harmful by inhalation and if swallowed.
R36 – Irritating to eyes.
R43 – May cause sensitisation by skin contact.

Safety phrases See Sections 4, 5, 6, 7, 8, 10, 12, 13

ADG classification 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:
CARBAMATE PESTICIDE, LIQUID, TOXIC (thiodicarb solution), Class 6.1, UN 2992, Packing Group III. Marine Pollutant if shipped by sea.

SUSDP classification (Poison Schedule) Schedule 6 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Imidacloprid	[138261-41-3]	350
Thiodicarb	[59669-26-0]	250
Other ingredients, including emulsifiers, stabilisers and water	Non-hazardous	625

MATERIAL SAFETY DATA SHEET



Date of Issue: May 30, 2006

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 person to fresh air and keep warm and at rest. If breathing is difficult, administer oxygen if available. If breathing stops, administer CPR (cardio-pulmonary resuscitation). Get to a doctor or hospital quickly.
Skin contact	If poisoned by skin absorption, remove any contaminated clothing and wash skin thoroughly. Take care to avoid personal contamination. Get to a doctor or hospital quickly.
Eye contact	Rinse eyes immediately with clean water for at least 15 minutes. Obtain medical advice.
Ingestion	Wash out mouth with water. Keep patient at rest and seek immediate medical advice as above. Get to a doctor or hospital quickly. Never give anything by mouth to an unconscious person.
First Aid Facilities	Ensure washing facilities are available.
Medical attention	<p><u>Information for the physician:</u> This product contains 2 active ingredients, imidacloprid belonging to the chloronicotinyl or neonicotinoid chemical group, and thiodicarb, which is a carbamate insecticide – a rapidly reversible cholinesterase inhibitor.</p> <p><u>Symptoms</u> <i>Local:</i> Slight skin and eye irritation <i>Systemic (imidacloprid):</i> Apathetic state, depressed muscular tone, respiratory disturbances and trembling. Muscular cramps are also possible in severe cases of poisoning. <i>Systemic (thiodicarb):</i> Headache, perspiration, lacrimation and salivation, blurring of vision, flushing, dizziness, nausea, vomiting and diarrhoea. Abdominal pain, chest tightness, hypotension and bradycardia. Muscular twitching, convulsions and depression of the respiratory centre.</p> <p><u>Treatment of local contamination</u> See First Aid Measures above. Care should be taken to avoid personal contamination.</p> <p><u>Treatment for imidacloprid poisoning</u> <i>Systemic:</i> Symptomatic (nicotine-like effects). Monitor respiratory and cardiac functions. Gastric lavage should be considered if a significant amount has been ingested within 2 hours. Administration of activated charcoal and sodium sulphate is advisable following ingestion of large amounts.</p> <p><u>Treatment for thiodicarb poisoning</u> Monitor respiratory, cardiac and central nervous system functions. Monitor red blood cell and plasma cholinesterase, and ECG. Carry out gastric lavage and administration of charcoal and sodium sulphate. Endotracheal intubation, artificial respiration and/or oxygen, as necessary Elimination by dialysis (forced alkaline diuresis) If necessary, anticonvulsant therapy with diazepam i.v., 5-10 mg for adults (pro rata for children), repeated as necessary until fully sedated. Atropine sulphate is an antidote. Administer 2–10 mg i.v., followed every 15 minutes by 2 mg atropine i.v. repeated until fully atropinised. Good oxygenation is essential for the tolerance of atropine. Recovery is expected to be spontaneous.</p>

MATERIAL SAFETY DATA SHEET



Date of Issue: May 30, 2006

5. FIRE FIGHTING MEASURES

Extinguishing media	Water spray, foam, extinguishing powder, carbon dioxide, sand.
Hazards from combustion products	In a fire, formation of hydrogen chloride, hydrogen cyanide, acetonitrile, dimethyl sulfide, methyl isocyanate, methomyl and oxides of carbon, nitrogen and sulphur can be expected.
Precautions for fire fighters	Fire-fighters 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. Persons exposed to contaminated smoke should be examined by a doctor for symptoms of poisoning.

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. Keep people and animals away. 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 labeled, sealed drums for safe disposal. Clean floor and any contaminated items with a damp cloth and place the cloth in the disposal drum afterwards. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority. Decontaminate tools and equipment following cleanup. Any spillage of treated seed must be cleaned up promptly, preferably by recovery and re-use.

7. HANDLING AND STORAGE

Handling	Keep out of reach of children. Harmful if inhaled or swallowed. Will irritate eyes. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin. Avoid inhalation of product or dust from treated seed. If in eyes, rinse eyes thoroughly with water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, respirator, face shield or goggles and contaminated clothing. Wash respirator with detergent and warm water.
Storage	Store in the closed, original container in a dry, well-ventilated area, as cool as possible. Do not store for prolonged periods in direct sunlight. When treated seed is stored it should be kept apart from other grain or seeds and the bags or other containers should be clearly marked to indicate the contents have been treated with this product. Do NOT allow seed treated with this product to contaminate seed intended for human or animal consumption. Bags that have held treated seed are not to be used for any other purpose. If the seed is not used immediately after treatment it should be stored in a dry, well-ventilated place.
Flammability	Not flammable – water based product.

MATERIAL SAFETY DATA SHEET



Date of Issue: May 30, 2006

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards NOHSC exposure standard for glycerin mist: TWA 10 mg/m³
NOHSC exposure standard for precipitated silica: TWA 10 mg/m³

Definition:

Exposure standard – Time Weighted Average (TWA) means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.

Biological limit values None allocated Note: This product contains a carbamate, not an organophosphorus compound.

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

Personal Protective Equipment

- Wear face shield or goggles.
- Wear cotton overalls buttoned to the neck and wrist over normal clothing, and a washable hat.
- Wear elbow-length PVC gloves.
- Wear a half-facepiece respirator with combined dust and gas cartridge if inhalation is possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Viscous cream suspension
Odour: Slight sulphurous
pH: 4.5 to 6.5
Vapour pressure: 4 x 10⁻⁷ mPa at 20° C (imidacloprid); 2.7 µPa at 25° C (thiodicarb)
Vapour density: Not available
Boiling point: Not available
Freezing/melting point: Not available
Solubility: Miscible with water
Specific Gravity: 1.225 at 20° C
Flash Point: No flash point up to 100° C
Flammability (explosive) limits: Not applicable
Auto-ignition temperature: Not available
Partition coefficient (octanol/water): *Imidacloprid:* Log P_{ow} = 0.57 (21° C); *Thiodicarb:* Log P_{ow} = 1.62

10. STABILITY AND REACTIVITY

Chemical stability Stable under normal conditions of use.

Conditions to avoid Avoid extreme heat.

Incompatible materials Avoid strong oxidising agents.
Thiodicarb is incompatible with acidic and alkaline substances, certain heavy metal oxides, salts of certain fungicides such as maneb and mancozeb, cuprammonium carbonate or Bordeaux mixtures, brass, iron chlorides, rust, metal salts, cupric chloride.

Date of Issue: May 30, 2006

10. STABILITY AND REACTIVITY - continued

Hazardous decomposition products	None under normal conditions. In a fire, formation of hydrogen chloride, hydrogen cyanide, acetonitrile, dimethyl sulfide, methyl isocyanate, methomyl and oxides of carbon, nitrogen and sulphur can be expected. This product is unstable under highly acidic or highly alkaline conditions.
Hazardous reactions	None under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	Harmful if inhaled. May produce symptoms similar to those from ingestion.
Skin contact	May irritate skin. Repeated skin exposure may cause allergic disorders.
Eye contact	Irritating to eyes.
Ingestion	Harmful if swallowed. Symptoms of poisoning include: <u>Due to imidacloprid:</u> Apathetic state, depressed muscular tone, respiratory disturbances and trembling. Muscular cramps are also possible in severe cases of poisoning. <u>Due to thiodicarb, which is a reversible cholinesterase inhibitor:</u> Headache, perspiration, lacrimation and salivation, blurring of vision, flushing, dizziness, nausea, vomiting and diarrhoea. Abdominal pain, chest tightness, hypotension and bradycardia. Muscular twitching, convulsions and depression of the respiratory centre.

ANIMAL TOXICITY DATA

Acute:	
Oral toxicity	LD ₅₀ rat: 242 mg/kg (<i>calculated from active ingredients</i>)
Dermal toxicity	LD ₅₀ rat: > 2000 to > 4000 mg/kg - <i>similar products</i>
Inhalation toxicity	LC ₅₀ rat: > 1.86 mg/L aerosol (4 hour) (highest technically producible concentration) – <i>similar product</i> LC ₅₀ rat: 0.53 mg/L (4 h) - <i>technical thiodicarb</i>
Skin irritation	Not irritating (rabbit) – <i>similar products</i>
Mucous membrane irritation	Not irritating (rabbit) – <i>similar products</i>
Sensitisation	Sensitising (guinea pig) – <i>similar product</i>

Chronic:

Animal studies with imidacloprid showed no evidence of oncogenic effects, no evidence of carcinogenic effects and no teratogenic potential. Imidacloprid is not mutagenic.

Thiodicarb was not teratogenic or carcinogenic in animal studies. Two of the nine *in vitro* mutagenicity studies with thiodicarb were positive, while an *in vivo* mutagenicity study in rats was negative. The weight of evidence suggests that thiodicarb is not a mutagen.

Date of Issue: May 30, 2006

12. ECOLOGICAL INFORMATION

Toxic to fish and certain aquatic species. Dangerous to bees. Toxic to birds. DO NOT contaminate streams, rivers or waterways with this product, the used containers, or bags that have held treated seed.

Do NOT allow seed treated with this product to be used for or contaminate seed intended for animal consumption or poultry feed. Do NOT feed treated seed or otherwise expose to wild or domestic birds. Any spillages of treated seed, however minor, must be cleaned up immediately, preferably by recovery and re-use.

Ecotoxicity

Imidacloprid:

Fish toxicity:

LC₅₀: 237 mg/L (96 h); golden orfe (*Leuciscus idus melanotis*)

LC₅₀: 211 mg/L (96 h); rainbow trout (*Oncorhynchus mykiss*)

LC₅₀: 280 mg/L (96 h); carp (*Cyprinus carpio*)

Aquatic invertebrate toxicity:

EC₅₀: 0.055 mg/L (48 h); *Hyalella azteca*

EC₅₀: 85 mg/L (48 h) *Daphnia magna*

Algae toxicity:

EC₅₀: > 10 mg/L (72 h); algae (*Desmodesmus subcapitata*)

Bacteria toxicity:

EC₅₀: > 10000 mg/L; activated sludge (OECD 209)

Bird toxicity:

Acute oral LD₅₀: 31 mg/kg; Japanese quail

Acute oral LD₅₀: 152 mg/kg; bobwhite quail

Thiodicarb:

Fish toxicity:

LC₅₀: > 3.3 mg/L (flow through) (96 h); rainbow trout

LC₅₀: 1.4 mg/L (flow through) (96 h); bluegill sunfish

Aquatic invertebrate toxicity:

EC₅₀: 0.027 mg/L (flow through) (48 h); *Daphnia magna*

Algae toxicity:

IC₅₀: > 18 mg/L (72 h); algae (*Selenastrum capricornutum*)

Bird toxicity:

LD₅₀: 2023 mg/kg; Japanese quail

LC₅₀ - dietary: > 5620 mg/kg (8 days); mallard duck

LC₅₀D - dietary: > 5620 mg/kg; bobwhite quail

Environmental fate, persistence, degradability and mobility

Imidacloprid shows a medium adsorption to soil. Classified as immobile in soil. Not expected to leach.

Thiodicarb is rapidly degraded in soils of various types, under both aerobic and anaerobic conditions, by hydrolysis and photolysis. The primary degradation products are methomyl and methomyl oxime. DT₅₀ of thiodicarb in soil is 3-8 days, depending upon soil type.

13. DISPOSAL CONSIDERATIONS

When returnable container is empty or contents no longer required return it to the point of purchase. Do not attempt to breach the valve system or the filling point, or contaminate the container with water or other products. Do not dispose of undiluted chemicals on site. Empty containers and product should not be burnt. Dispose of waste product through a reputable waste contractor.

If disposal of treated seed is required, ensure treated seeds are thoroughly buried and not accessible to livestock, birds and wildlife.

MATERIAL SAFETY DATA SHEET



Date of Issue: May 30, 2006

14. TRANSPORT INFORMATION

UN number	2992
Proper shipping name	CARBAMATE PESTICIDE, LIQUID, TOXIC (thiodicarb solution)
Class and Subsidiary Risk	6.1 No subsidiary risk
Packing Group	III
EPG	Guide 34 - Dangerous Goods - Initial Emergency Response Guide
Hazchem code	2X
Marine Pollutant	Yes

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988.

Australian Pesticides and Veterinary Medicines Authority approval number: 60092 See also Section 2.

16. OTHER INFORMATION

Trademark information Amparo® - Registered Trademark of Bayer.

Preparation information New MSDS.

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