

# MATERIAL SAFETY DATA SHEET



Date of Issue: August 19<sup>th</sup> 2010

## 1. IDENTIFICATION OF MATERIAL AND SUPPLIER

**Product name** **Temik® 150G Insecticide/Nematicide**  
**Other names** None  
**Product code and pack sizes** 4207954 (20 kg)  
**Chemical group** Oxime carbamate  
**Recommended use** Agricultural insecticide and nematicide  
**Formulation** Granule  
**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](http://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**  
**Very poisonous. Cholinesterase inhibitor. Toxic to aquatic organisms and wildlife.**

**Hazard classification** Hazardous (National Occupational Health and Safety Commission - NOHSC)  
**Risk phrases** R24 – Toxic in contact with skin  
R26/28 – Very toxic by inhalation and if swallowed.  
**Safety phrases** See Sections 4, 5, 6, 7, 8, 9, 13  
**ADG classification** “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, SOLID, TOXIC (contains aldicarb), Class 6.1, Packing Group II, UN 2757.  
**SUSDP classification** Schedule 7

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/kg)
Aldicarb	[116-06-3]	150
Gypsum	[13397-24-5]	≈ 820
Precipitated amorphous silica	[7631-86-9]	≈ 5
Other ingredients, non hazardous	----	≈ 25

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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.**

<b>Inhalation</b>	If inhaled, remove to fresh air and keep at rest. If signs of poisoning occur, obtain <b>urgent</b> medical advice, as above. If breathing stops or shows signs of failing, start artificial respiration. Do not use the direct mouth-to-mouth method. Administer oxygen if necessary. Get to a doctor or hospital quickly. If advised by doctor or Poisons Information Centre, atropine tablets may be administered.
<b>Skin contact</b>	If poisoned by skin absorption, remove any contaminated clothing and shoes immediately. Wash skin thoroughly with soap and water. Seek immediate medical assistance - get to doctor or hospital quickly. Persons assisting the patient should protect themselves from contamination. If advised by doctor or Poisons Information Centre, atropine tablets may be administered.
<b>Eye contact</b>	Rinse eyes immediately with clean water for at least 15 minutes and obtain <b>urgent</b> medical aid, preferably from an eye specialist.
<b>Ingestion</b>	Wash out mouth with water. Keep patient at rest and seek <b>urgent</b> medical advice as above. <b>Transport patient to doctor or hospital quickly.</b> If advised by doctor or Poisons Information Centre, atropine tablets may be administered. DO NOT attempt to give anything by mouth to a semi-conscious or unconscious person.
<b>First Aid Facilities</b>	Provide eyewash and safety shower facilities in the workplace.
<b>Medical attention</b>	Aldicarb belongs to the carbamate group of insecticides, which are acetylcholinesterase inhibitors. Inhibition of acetylcholinesterase results in accumulation of the neurotransmitter acetylcholine in the central and peripheral nervous system.

### Symptoms

*Local:* Eye contact may cause miosis and lacrimation

*Systemic:* bradycardia, hypotension, salivation, bronchial secretion, nausea, vomiting, diarrhoea, sweating, muscle fibrillation, tics, myoclonus, paralysis of respiratory muscles, peripheral respiratory paralysis, somnolence, coma, respiratory depression and failure, hypothermia, convulsions. Repeated overexposure may cause more severe cholinesterase inhibition with more pronounced signs and symptoms.

### Treatment

Basic aid, decontamination, symptomatic treatment and if necessary administration of antidote, atropine sulfate.

### Note for physicians

Endotracheal intubation should be done and gastric lavage performed, followed by administration of charcoal. Before treatment is started, clear symptoms of carbamate insecticide poisoning as described above should be present, or a reduction of cholinesterase activity to below 30% of normal should be found. Treatment is with atropine sulphate. Additionally diazepam should be given in case of seizures/convulsions. Atropine should not be given to a cyanosed patient. Monitor respiratory, cardiac and

## 4. FIRST AID MEASURES - continued

central nervous system functions. Monitor red blood cell and plasma cholinesterase levels. Administer oxygen if necessary. Watch for pulmonary oedema and delayed neurological symptoms.

2 regimens for initial atropine treatment are currently suggested, in both cases the cessation of the cholinergic symptoms salivation, bronchial secretion, sweating and bradycardia indicates sufficient atropinization. The skin should be dry, the lungs should be clear on auscultation and the heart rate should be in a range of 80 to 100/minute.

Overdoses of atropine have to be strictly avoided, as these can promote heart rhythm disturbances (torsades des pointes).

Regimen 1: (2-10 mg atropine i.v. , followed every 15 minutes by 2 mg atropine i.v. until cessation of the symptoms.

Regimen 2:

- 2 mg atropine i.v., 5 minutes wait, if symptoms persist or reappear
- 4 mg atropine i.v., 5 minutes wait, if symptoms persist or reappear
- 8 mg atropine i.v., 5 minutes wait, if symptoms persist or reappear
- 16 mg atropine i.v., 5 minutes wait, if symptoms persist or reappear
- 32 mg atropine i.v.

No higher doses of atropine should be given nor are necessary.

It is mandatory to allow 5 minutes after each dose for atropine to become fully effective, the next higher dose must not be given earlier and only if the above symptoms are persisting. Regimen 2 currently is advisable. If further atropine treatment is required (taking into account the relatively short effect of carbamates), it should be done by continuous application of 1 – 2 mg/hour. Atropine treatment can be stopped, when the plasma cholinesterase level has returned to above 30% of normal.

For children the dosage has to be more careful due to a higher sensitivity of children to atropine. The initial dose should be 0.1 mg/kg body weight, then careful repletion or increase depending on the reversal of symptoms as described above.

Both giving too much and too little atropine should strictly be avoided, the dosage should be adjusted to the signs of esterase-inhibitor poisoning.

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## 5. FIRE FIGHTING MEASURES

<b>Extinguishing media</b>	Carbon dioxide, dry agent, foam, water spray
<b>Hazards from combustion products</b>	Hazardous decomposition products produced in a fire may include oxides of carbon, nitrogen and sulphur, aldicarb nitrile, aldicarb oxime and methylvamine.
<b>Precautions for fire fighters</b>	<p>Fire fighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). Keep unnecessary people away. Isolate hazard area and deny entry. Evacuate residents who are downwind of the fire. 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.</p> <p>Persons who may have been exposed to contaminated smoke should have immediate medical attention. Symptoms of poisoning should not be mistaken for heat exhaustion or smoke inhalation. Do not get water inside containers.</p>

## 6. ACCIDENTAL RELEASE MEASURES

Avoid contact with the spilled material or contaminated surfaces. Do not smoke, eat or drink during the cleanup process. Personnel involved in cleanup should wear full body protective clothing and equipment as described in Section 8 – PERSONAL PROTECTION. Keep people and animals away. Consider evacuation and obtain assistance from emergency services if needed. Prevent spilled material from entering drains or watercourses. Contain spill and sweep up carefully. Avoid creating dust. Collect and store in recovery drums. Clean floor with detergent and water, absorbing wash water with clay granules and transfer this to the drum. Seal and label drums for safe disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority. Decontaminate tools, equipment and clothing used in the cleanup. Dispose of any heavily soiled clothing, placing it in disposal drum.

## 7. HANDLING AND STORAGE

<b>Handling</b>	<p>Keep out of reach of children. Very dangerous. Product is poisonous if absorbed by skin contact, inhaled or swallowed. Avoid contact with eyes and skin. Do not inhale dust. Do not touch or rub eyes, nose or mouth with hand when handling granules. Obtain an emergency supply of atropine tablets 0.6 mg. When using the product, wear cotton overalls buttoned to the neck and wrist, washable hat, elbow-length PVC gloves and half-facepiece respirator with dust cartridge or canister. If product on skin, immediately wash area with soap and 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, contaminated clothing and respirator and if rubber wash with detergent and warm water.</p>
<b>Storage</b>	<p>Store in the closed, original container in a dry, cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilisers. DO NOT store in or around the home. Store below 45°C. Avoid extreme heat. Keep dry – moisture can increase handling hazards.</p>
<b>Flammability</b>	<p>Non flammable. However, dust / air mixtures can build up static electrical charges and fine dust may form explosive mixtures in air.</p>

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure standards** The occupational exposure limit for aldicarb set by Bayer CropScience is 0.07 mg/m<sup>3</sup>. The National Occupational Health and Safety Commission exposure standard (TWA) for gypsum is 10 mg/m<sup>3</sup>. The National Occupational Health and Safety Commission exposure standard (TWA) for fumed silica is 2 mg/m<sup>3</sup>.

### Definitions:

*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** Production workers and agricultural workers handling this product should be monitored for cholinesterase levels. A baseline level should be established prior to any potential exposure.

**Engineering controls** Control process conditions to avoid contact. Use local exhaust ventilation during manufacture. Use this product in a well-ventilated area only.

**Personal Protective Equipment** Product is very dangerous – poisonous if absorbed by skin contact, inhaled or swallowed.

- Wear half-facepiece respirator with dust cartridge or canister - AS/NZS 1715/1716 approved. If high concentrations of aldicarb may be present or in enclosed spaces, use a full-face positive pressure air-supplied respirator equipped with an emergency escape air supply unit or an air supplied hood or a self-contained breathing apparatus unit.
- Wear cotton overalls buttoned to the neck and wrist, a washable hat, elbow-length PVC gloves and impervious footwear.
- Keep working clothes separate. Remove soiled clothing immediately and wash separately from other laundry. Badly soiled clothing or footwear should be disposed of.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Dark brown to black granules
<b>Odour:</b>	Sulphurous
<b>pH:</b>	6 - 7 (1% w/w solution)
<b>Vapour pressure:</b>	Not available
<b>Vapour density:</b>	Not available
<b>Boiling point:</b>	Not applicable
<b>Freezing/melting point:</b>	Not available
<b>Solubility:</b>	Slightly soluble
<b>Bulk Density:</b>	Not available
<b>Flash Point:</b>	Non flammable, but will burn
<b>Flammability (explosive) limits:</b>	Not available
<b>Auto-ignition temperature:</b>	Not available
<b>Partition coefficient (octanol/water):</b>	K <sub>OW</sub> = 1.15 at 25 °C (aldicarb)

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## 10. STABILITY AND REACTIVITY

<b>Chemical stability</b>	Stable under normal conditions of use.
<b>Conditions to avoid</b>	Extreme heat and fire and dust inducing conditions can lead to instability. Under alkaline conditions, aldicarb will hydrolyse to give aldicarb oxime, methylamine and carbon dioxide. Moisture can increase handling hazards.
<b>Incompatible materials</b>	Strong bases
<b>Hazardous decomposition products</b>	Hazardous decomposition products produced in a fire may include oxides of carbon, nitrogen and sulphur, aldicarb nitrile, aldicarb oxime and methylamine.
<b>Hazardous reactions</b>	None

## 11. TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

<b>Inhalation</b>	Very dangerous. Product is poisonous if inhaled.
<b>Skin contact</b>	Very dangerous. Product is very poisonous if absorbed by skin contact. Absorption will be increased with moisture. Studies indicate this product is not a skin irritant or a sensitiser.
<b>Eye contact</b>	May be absorbed through the eye and produce symptoms similar to those above. May be a slight eye irritant, causing redness and weeping.
<b>Ingestion</b>	Very dangerous. Product is very poisonous and may be fatal if swallowed.

### ANIMAL TOXICITY DATA - Product

#### Acute:

<b>Oral toxicity</b>	LD <sub>50</sub> rabbit: 5.3 mg/kg
<b>Dermal toxicity</b>	LD <sub>50</sub> rat: 283 mg/kg
<b>Inhalation toxicity</b>	Not available
<b>Skin irritation</b>	Product is highly toxic and rapidly absorbed through eyes and skin.
<b>Eye irritation</b>	Product is highly toxic and rapidly absorbed through eyes and skin.
<b>Sensitisation</b>	Not a skin sensitiser.

#### Chronic:

The main health effects from repeated exposure would be toxic symptoms of cholinesterase inhibition as described above. In 2-year feeding trials with aldicarb rats receiving 0.3 mg/kg daily were unaffected. The no observable effect level listed by the Therapeutic Goods Administration for aldicarb is 0.01 mg/kg bw/day.

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## 12. ECOLOGICAL INFORMATION

Dangerous to fish and aquatic invertebrates. Dangerous to birds and wildlife. Dangerous to livestock. Toxic to bees. DO NOT contaminate streams, rivers or waterways with Temik or the used containers.

### Ecotoxicity

#### Aldicarb:

*Fish toxicity:* LC<sub>50</sub> (96 h) bluegill sunfish (*Lepomis macrochirus*) 72 µg/L  
LC<sub>50</sub> (96 h) rainbow trout (*Oncorhynchus mykiss*) >0.56 mg/L  
*Daphnia toxicity:* LC<sub>50</sub> (21 d) 0.18 mg/L  
*Algae toxicity:* E<sub>r</sub>C<sub>50</sub> (96 h) *Scenedesmus subspicatus* 1.4 mg/L  
*Bird toxicity:* LC<sub>50</sub> (8 d) bobwhite quail 71 mg/kg diet  
LD<sub>50</sub> mallard ducks 1.0 mg/kg/bw  
*Bees:* LD<sub>50</sub> (contact) 0.285 µg/bee  
*Worms:* LC<sub>50</sub> (14 d) *Eisenia foetida* 16 mg/kg soil

### Environmental fate, persistence, degradability, mobility

Aldicarb is rapidly degraded in acid soils (pH > 7.0), less so at pH ≤ 5.5.

## 13. DISPOSAL CONSIDERATIONS

Fully empty contents of the container into application equipment. Close all valves and return container to Bayer CropScience Pty Ltd. Dispose of waste product as hazardous waste via a licensed disposal contractor to an approved landfill. Do not discharge into drains or sewers.

## 14. TRANSPORT INFORMATION

UN number	2757
Proper shipping name	CARBAMATE PESTICIDE, SOLID, TOXIC (contains aldicarb)
Class and Subsidiary Risk	6.1
Packing Group	II
EPG	Guide 34 – Dangerous Goods - Initial Emergency Response Guide
Hazchem code	2X
Marine Pollutant	Yes (Aldicarb is a Marine Pollutant Class "P")

## 15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994.  
Australian Pesticides and Veterinary Medicines Authority approval number: 48937

See also Section 2.

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## 16. OTHER INFORMATION

**Special Precautions** All users of Temik 150G must have attended a training program and be issued with a Bayer CropScience Certificate of Temik Accreditation prior to purchase and use of this product.

**Trademark information** Temik® is a Registered Trademark of Bayer.

**Preparation information** Replaces June 30<sup>th</sup> 2008 edition.  
Reasons for revision: First Aid measures.

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