



## Section 1 - Identification of The Material and Supplier

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**Chemical nature:** Carbendazim is a benzimidazole derivative.  
**Trade Name:** Howzat® SC Fungicide  
**Product Use:** Agricultural fungicide for use as described on the product label.  
**Creation Date:** March, 2003  
**This version issued:** August, 2012 and is valid for 5 years from this date.

## Section 2 - Hazards Identification

### Statement of Hazardous Nature

This product is classified as: Hazardous according to the criteria of SWA Australia.

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

**Risk Phrases:** R61, R20/22. May cause harm to the unborn child. Harmful through inhalation, and if swallowed.

**Safety Phrases:** S2, S20, S22, S38, S24/25. Keep out of reach of children. When using, do not eat or drink. Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin and eyes.

**SUSMP Classification:** S6

**ADG Classification:** None allocated. Not a Dangerous Good.

**UN Number:** None allocated

## Emergency Overview

**Physical Description & colour:** Viscous white liquid.

**Odour:** Mild odour.

**Major Health Hazards:** may cause irreversible effects.

## Potential Health Effects

**Warning:** this product contains carbendazim which causes birth defects in laboratory animals. Women of childbearing age should avoid contact with this product.

### Inhalation

**Short term exposure:** Available data indicates that this product is harmful if inhaled. However, product is unlikely to cause any discomfort or irritation.

**Long Term exposure:** No data for health effects associated with long term inhalation.

### Skin Contact:

**Short term exposure:** Available data indicates that this product is not harmful. It should present no hazards in normal use. However product may be mildly irritating, but is unlikely to cause anything more than mild discomfort which should disappear once contact ceases.

**Long Term exposure:** No data for health effects associated with long term skin exposure.

### Eye Contact:

**Short term exposure:** Available data shows that this product is not harmful. However product may be mildly irritating to eyes, but is unlikely to cause anything more than mild discomfort which should disappear once product is removed.

**Long Term exposure:** No data for health effects associated with long term eye exposure.

### Ingestion:

**Short term exposure:** This product is harmful if swallowed, but unlikely to cause any irritation problems in the short or long term.

**Long Term exposure:** No data for health effects associated with long term ingestion.

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**Carcinogen Status:**

**SWA:** No significant ingredient is classified as carcinogenic by SWA.

**NTP:** No significant ingredient is classified as carcinogenic by NTP.

**IARC:** No significant ingredient is classified as carcinogenic by IARC.

**Section 3 - Composition/Information on Ingredients**

Ingredients	CAS No	Conc, %	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Carbendazim	10605-21-7	50	not set	not set
Other non hazardous ingredients	secret	10-20	not set	not set
Water	7732-18-5	to 100	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak" is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

**Section 4 - First Aid Measures****General Information:**

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call.

**Inhalation:** First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

**Skin Contact:** Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed. If in doubt obtain medical advice.

**Eye Contact:** No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes.

**Ingestion:** First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

**Section 5 - Fire Fighting Measures**

**Fire and Explosion Hazards:** There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.

This product is likely to decompose only after heating to dryness, followed by further strong heating.

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

**Extinguishing Media:** Not Combustible. Use extinguishing media suited to burning materials.

**Fire Fighting:** If a significant quantity of this product is involved in a fire, call the fire brigade.

**Flash point:** Does not burn.

**Upper Flammability Limit:** Does not burn.

**Lower Flammability Limit:** Does not burn.

**Autoignition temperature:** Does not burn.

**Flammability Class:** Does not burn.

**Section 6 - Accidental Release Measures**

**Accidental release:** In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include rubber, PVC. Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this MSDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

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## Section 7 - Handling and Storage

**Handling:** Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this MSDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

**Storage:** This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this class of poison. Make sure that containers of this product are kept tightly closed. Make sure that the product does not come into contact with substances listed under "Materials to avoid" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

## Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

**SWA Exposure Limits**                      **TWA (mg/m<sup>3</sup>)**                      **STEL (mg/m<sup>3</sup>)**

Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for Carbendazim is set at 0.03mg/kg/day. The corresponding NOEL is set at 2.5mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values are taken from Australian ADI List, Sept 2011.

**Ventilation:** Good ventilation is necessary for this product to be used safely. However make sure that the work environment remains clean and that vapours and mists are minimised.

**Eye Protection:** Eye protection is not normally necessary when this product is being used. However, if in doubt, wear suitable protective glasses or goggles.

**Skin Protection:** The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when handling this product.

**Protective Material Types:** We suggest that protective clothing be made from the following materials: rubber, PVC.

**Respirator:** When handling this product, use a half facepiece respirator.

## Section 9 - Physical and Chemical Properties:

<b>Physical Description &amp; colour:</b>	Viscous white liquid.
<b>Odour:</b>	Mild odour.
<b>Boiling Point:</b>	Approximately 100°C at 100kPa.
<b>Freezing/Melting Point:</b>	No specific data. Liquid at normal temperatures.
<b>Volatiles:</b>	Water component.
<b>Vapour Pressure:</b>	2.37 kPa at 20°C (water vapour pressure).
<b>Vapour Density:</b>	No data.
<b>Specific Gravity:</b>	1.22-1.23
<b>Water Solubility:</b>	Completely soluble in water.
<b>pH:</b>	No data.
<b>Volatility:</b>	No data.
<b>Odour Threshold:</b>	No data.
<b>Evaporation Rate:</b>	No data.
<b>Coeff Oil/water distribution:</b>	No data
<b>Autoignition temp:</b>	Does not burn.

## Section 10 - Stability and Reactivity

**Reactivity:** This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

**Conditions to Avoid:** This product should be kept in a cool place, preferably below 30°C.

**Incompatibilities:** strong oxidising agents.

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**Fire Decomposition:** This product is likely to decompose only after heating to dryness, followed by further strong heating. Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death. Hydrogen cyanide poisoning signs and symptoms are weakness, dizziness, headache, nausea, vomiting, coma, convulsions, and death. Death results from respiratory arrest. Hydrogen cyanide gas acts very rapidly; symptoms and death can both occur quickly.

**Polymerisation:** This product is unlikely to undergo polymerisation processes.

## Section 11 - Toxicological Information

**Toxicity:** Carbendazim belongs to the methyl benzimidazole carbamate (MBCs) class of chemicals. Carbendazim causes birth defects in laboratory animals. Information also suggests that carbendazim has adverse effects and impacts on spermatozoa. These effects are likely due to the inhibition of the polymerisation of tubulin, the protein essential to the segregation of chromosomes during cell division. These could represent an undue hazard to the safety of people exposed to it during its handling or people using anything containing its residues.

Carbendazim: LD<sub>50</sub> Oral, Rat >15,000mg/kg

LD<sub>50</sub> Oral, Dog = >2500mg/kg

LD<sub>50</sub> Dermal, Rat = >2000mg/kg

LD<sub>50</sub> Dermal, Rabbit = >10,000mg/kg

## Section 12 - Ecological Information

**Birds:** LD<sub>50</sub> quail: 5826-15595mg/kg

**Fish:** LC<sub>50</sub> carp: 0.61mg/L

LC<sub>50</sub> bluegill sunfish: >17mg/L

**Algae:** EC<sub>50</sub> 1.3mg/L

**Daphnia:** EC<sub>50</sub> 0.13mg/L

LC<sub>50</sub> rainbow trout: 0.83mg/L

LC<sub>50</sub> guppie: >8mg/L

**Bees:** LD<sub>50</sub> 50µg/bee

**Worms:** LD<sub>50</sub> (*Eisenia foetida*) 6mg/kg

## Section 13 - Disposal Considerations

**Disposal:** Instructions concerning the disposal of this product and its containers are given on the registered label. These should be carefully followed. Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 <http://www.chemclear.com.au/> and for help with the disposal of empty drums, contact DrumMuster <http://www.drummuster.com.au/> where you will find contact details for your area.

## Section 14 - Transport Information

**ADG Code:** This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

## Section 15 - Regulatory Information

**AICS:** All of the significant ingredients in this product are compliant with NICNAS regulations.

## Section 16 - Other Information

This MSDS contains only safety-related information. For other data see product literature.

### Acronyms:

<b>ADG Code</b>	Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition
<b>AICS</b>	Australian Inventory of Chemical Substances
<b>SWA</b>	Safe Work Australia, formerly ASCC and NOHSC
<b>CAS number</b>	Chemical Abstracts Service Registry Number
<b>IARC</b>	International Agency for Research on Cancer
<b>NTP</b>	National Toxicology Program (USA)
<b>R-Phrase</b>	Risk Phrase
<b>SUSMP</b>	Standard for the Uniform Scheduling of Medicines & Poisons
<b>UN Number</b>	United Nations Number

### Contact Points:

Call Adama on (02)9431 7800

Fax: (02)9431 7700 and ask for the technical manager.

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**Police and Fire Brigade:  
Emergency contact:**

**Dial 000  
1800 024 973 (24 hours)**

**If ineffective:**

**Dial Poisons Information Centre  
(13 1126 from anywhere in Australia)**

The information contained in this Material Safety Data Sheet is provided in good faith and is believed to be correct at the date hereof. However, it is expected that individuals receiving the information will exercise their independent judgement in determining its appropriateness for a particular purpose. Adama Australia Pty Ltd makes no representation as to the accuracy or comprehensiveness of the information and to the full extent allowed by law excludes all liability whatsoever, whether with respect to negligence or otherwise, for any loss or damage arising from or connection with the supply or use of the information in this Material Safety Data Sheet.

Please read all labels carefully before using product.

This MSDS is prepared in accord with the SWA document "National Code of Practice for the Preparation of Material Safety Data Sheets" 2nd Edition [NOHSC:2011(2003)]  
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