



## Section 1 - Identification of Chemical Product and Company

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**Substance:** Captan is a N-trihalomethylthio derivative.  
**Trade Name:** Ospray Captan WG Fungicide  
**Product Use:** Agricultural fungicide for use as described on the product label.  
**Creation Date:** November, 2008  
**Revision Date:** November, 2008

## Section 2 - Hazards Identification

### Statement of Hazardous Nature

This product is classified as: Xi, Irritating. T, Toxic. N, Dangerous to the environment. Hazardous according to the criteria of ASCC.

Not subject to the ADG Code when transported by Road or Rail in containers up to 500kg. (ADG 7, Special Provision AU01).

**Risk Phrases:** R23, R40, R41, R43, R50. Toxic by inhalation. Limited evidence of a carcinogenic effect. Risk of serious damage to eyes. May cause sensitisation by skin contact. Very toxic to aquatic organisms.

**Safety Phrases:** S26, S28, S38, S45, S61, S1/2, S36/37/39. In case of contact with eyes, rinse immediately with plenty of water and contact a doctor or Poisons Information Centre. After contact with skin, wash immediately with plenty of soap and water. In case of insufficient ventilation, wear suitable respiratory equipment. In case of accident or if you feel unwell, contact a doctor or Poisons Information Centre immediately (show this MSDS where possible). Avoid release to the environment. Refer to special instructions/Safety Data Sheets. Keep locked up and out of reach of children. Wear suitable protective clothing, gloves and eye/face protection.

**SUSDP Classification:** S6

**ADG Classification:** Class 9: Miscellaneous Dangerous Goods.

**UN Number:** 3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

## Emergency Overview

**Physical Description & Colour:** Grey-brown granulated solid.

**Odour:** No data.

**Major Health Hazards:** The rat oral LD<sub>50</sub> for Captan ranges from 8400 to 15,000 mg/kg, indicating very low acute toxicity. The mouse LD<sub>50</sub> is 7000 mg/kg. Sheep showed no effect at doses of 200 mg/kg, but experienced deaths at 250 mg/kg. The inhalation LC<sub>50</sub> (2-hour) in mice is 5.0 mg/L. Rabbits showed little or no skin sensitization to Captan, while guinea pigs were moderately sensitive. Workers exposed to high concentrations of Captan in air (6 mg/m<sup>3</sup>) experienced eye irritation including burning, itching, and tearing. Skin irritation also occurred in some cases. This product is toxic if inhaled, there is a limited evidence of a carcinogenic effect, may cause serious damage to eyes, possible skin sensitiser.

## Potential Health Effects

### Inhalation:

**Short Term Exposure:** Available data shows that this product is toxic, but symptoms are not available. In addition product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

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

### Skin Contact:

**Short Term Exposure:** Classified as a potential sensitiser by skin contact. Exposure to a skin sensitiser, once sensitisation has occurred, may manifest itself as skin rash or inflammation, and in some individuals this reaction can be severe. In addition product may be irritating, but is unlikely to cause anything more than mild transient discomfort.

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

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**Eye Contact:**

**Short Term Exposure:** This product is a severe eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms such as swelling of eyelids and blurred vision may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment is likely to cause permanent damage.

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

**Ingestion:**

**Short Term Exposure:** Significant oral exposure is considered to be unlikely. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.

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

**Carcinogen Status:**

**ASCC:** Captan is classified by ASCC as a Class 3 Carcinogen, possibly carcinogenic to humans.

See the ASCC website for further details. A web address has not been provided as addresses frequently change.

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

**IARC:** Captan is Class 3 - unclassifiable as to carcinogenicity to humans.

See the IARC website for further details. A web address has not been provided as addresses frequently change.

### Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Captan	133-06-2	800g/kg	0.5	not set
Other non hazardous ingredients	secret	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 ASCC 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 may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated 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:** If inhalation occurs, contact a Poisons Information Centre. Urgent hospital treatment is likely to be needed. Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

**Skin Contact:** Gently brush away excess solids. Wash gently and thoroughly with water (use non-abrasive soap if necessary) for 5 minutes or until chemical is removed.

**Eye Contact:** Quickly and gently brush particles from eyes. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the product is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately. Take special care if exposed person is wearing contact lenses.

**Ingestion:** If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

### Section 5 - Fire Fighting Measures

**Fire and Explosion Hazards:** There is little risk of an explosion from this product if commercial quantities are involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. This product, if scattered, may form flammable or explosive dust clouds in air.

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

**Extinguishing Media:** Suitable extinguishing media are carbon dioxide, dry chemical, foam, water fog. Water fog or fine spray is the preferred medium for large fires. Try to contain spills, minimise spillage entering drains or water courses.

**Fire Fighting:** If a significant quantity of this product is involved in a fire, call the fire brigade. There is little danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is full fire kit and breathing apparatus.

**Flash point:** Not flammable.

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<b>Upper Flammability Limit:</b>	No data.
<b>Lower Flammability Limit:</b>	No data.
<b>Autoignition temperature:</b>	No data.
<b>Flammability Class:</b>	No data.

### Section 6 - Accidental Release Measures

**Accidental release:** In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective chemically resistant clothing including eye/face protection, gauntlets and self contained breathing apparatus. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that dusts are likely to build up in cleanup area, we recommend that you use a suitable Dust Mask. Otherwise, not normally necessary.

Stop leak if safe to do so, and contain spill. Because of the environmentally hazardous nature of this product, special care should be taken to restrict release to waterways or drains. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Consider vacuuming if appropriate. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. 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.

### 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 schedule of poison. 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**, Industrial Clothing: **AS2919**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

<b>ASCC Exposure limits</b>	<b>TWA (mg/m<sup>3</sup>)</b>	<b>STEL (mg/m<sup>3</sup>)</b>
Captan	0.5	not set

The ADI for Captan is set at 0.1mg/kg/day. The corresponding NOEL is set at 10mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, April 2008.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

**Ventilation:** This product should only be used in a well ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

**Eye Protection:** Protective glasses or goggles must be worn when this product is being used. Failure to protect your eyes may lead to severe harm to them or to general health. Emergency eye wash facilities must also be available in an area close to where this product is being used.

**Skin Protection:** If you believe you may have a sensitisation to this product or any of its declared ingredients, you should prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

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

**Respirator:** If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask. Otherwise, not normally necessary.

Eyebaths or eyewash stations and safety deluge showers should be provided near to where this product is being used.

### Section 9 - Physical and Chemical Properties:

**Physical Description & colour:** Grey-brown granulated solid.

**Odour:** No data.

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<b>Boiling Point:</b>	Not available.
<b>Freezing/Melting Point:</b>	No specific data: Captan melts about 178°C
<b>Volatiles:</b>	No specific data; expected to be low at 100°C.
<b>Vapour Pressure:</b>	Negligible at normal ambient temperatures.
<b>Vapour Density:</b>	No data.
<b>Specific Gravity:</b>	No data.
<b>Water Solubility:</b>	Wettable - Captan solubility approx 3.3mg/L at 25°C
<b>pH:</b>	No data. Expected to be about neutral.
<b>Volatility:</b>	Negligible at normal ambient temperatures.
<b>Odour Threshold:</b>	No data.
<b>Evaporation Rate:</b>	No data.
<b>Coeff Oil/water Distribution:</b>	No data
<b>Autoignition temp:</b>	No data.

### 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:** Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

**Incompatibilities:** strong bases, strong oxidising agents.

**Fire Decomposition:** 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 in reducing atmospheres. Oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. Hydrogen chloride gas, other compounds of chlorine. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

**Polymerisation:** Polymerisation reactions are unlikely; they are not expected to occur.

### Section 11 - Toxicological Information

**Toxicity: Acute toxicity:** The rat oral LD<sub>50</sub> for Captan ranges from 8400 to 15,000 mg/kg, indicating very low acute toxicity. The mouse LD<sub>50</sub> is 7000 mg/kg. Sheep showed no effect at doses of 200 mg/kg, but experienced deaths at 250 mg/kg. The inhalation LC<sub>50</sub> (2-hour) in mice is 5.0 mg/L. Rabbits showed little or no skin sensitization to Captan, while guinea pigs were moderately sensitive. Workers exposed to high concentrations of Captan in air (6 mg/m<sup>3</sup>) experienced eye irritation including burning, itching, and tearing. Skin irritation also occurred in some cases.

**Chronic toxicity:** Rats fed up to 750 mg/kg/day of Captan for 4 weeks had decreased food intake and body weights. No deaths occurred in pigs given as much as 420 to 4000 mg/kg/day in the diet for 12 to 25 weeks, however, cattle given six doses of 250 mg/kg experienced varied toxic effects, including death.

**Reproductive effects:** Pregnant mice exposed by inhalation to high doses of Captan for 4 hours a day during days 6 to 15 of gestation showed significant mortality or weight loss. Foetal mortality accompanied these effects. Mice fed 50 mg/kg/day over three generations reproduced normally. Captan is unlikely to cause reproductive effects in humans at usual levels of exposure.

**Teratogenic effects:** Teratogenicity studies with rats, rabbits, hamsters, and dogs have given both negative and positive results. However, the weight of evidence suggests that Captan does not produce birth defects.

**Mutagenic effects:** Although Captan was mutagenic in some laboratory tests on isolated tissue cultures, the majority of evidence indicates that Captan is nonmutagenic.

**Carcinogenic effects:** There is strong evidence that Captan causes cancer in female mice and in male rats at high doses. Tumours were associated with the gastrointestinal tract and, to a lesser degree, with the kidneys. Tumours appeared in the test animals at doses of about 300 mg/kg/day.

**Organ toxicity:** Most organ-specific effects are found in the kidneys of rats at and above doses of 100 mg/kg/day.

**Fate in humans and animals:** Studies in several animal species have shown that Captan is rapidly absorbed from the gastrointestinal tract and is rapidly metabolized. Residues are excreted primarily in the urine. Rats given Captan orally excreted a third in the faeces and half in the urine within 24 hours. A cow fed small amounts in its diet for 4 days had no Captan in the milk at a 0.01 mg/L detection limit, nor could any be detected in the urine at a 0.1 mg/L detection limit.

Captan is Classed by ASCC as a potential sensitiser by skin contact.

### Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Captan	Conc>=25%: T; R40; R23; R41; R43

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## Section 12 - Ecological Information

This product is very toxic to aquatic organisms. This product is not readily biodegradable. However, likely to degrade slowly in the soil or water and not cause long term problems.

**Effects on birds:** Captan is practically nontoxic to birds. The LD<sub>50</sub> is greater than 5000 mg/kg in mallard ducks and pheasants. The LD<sub>50</sub> is 2000 to 4000 mg/kg in bobwhite quail. High doses administered for 90 days to chickens caused an 80% reduction in the number of eggs produced, but had no effect on the fertility or hatchability of the eggs produced.

**Effects on aquatic organisms:** Captan is very highly toxic to fish. The LC<sub>50</sub> (96-hour) for technical Captan ranges from 0.056 mg/L in cutthroat trout and chinook salmon to 0.072 mg/L in bluegill. The LC<sub>50</sub> for Captan in the aquatic invertebrate *Daphnia magna* is 7 to 10 mg/L, indicating that the compound is moderately toxic to this and other aquatic invertebrates. Captan has a low to moderate tendency to accumulate in living tissue. Fish exposed for 3 days to concentrations which would be expected in a pond following treatment of an adjacent watershed at a rate of 1kg/hectare, had no detectable residues of Captan. Estimates of the bioconcentration factor range from 10 to 1000.

**Effects on other organisms:** Captan is not toxic to bees when used as directed.

### Environmental Fate:

**Breakdown in soil and groundwater:** Captan has a low persistence in soil, with a half-life of 1 to 10 days in most soil environments. Captan was not detected in field studies of its mobility at application rates of up to 42 kg active ingredient per hectare.

**Breakdown in water:** Captan is rapidly degraded in near neutral water. Half-lives of 23 to 54 hours and 1 to 7 hours have been reported at various acidities and temperatures. The effective residual life in water is 2 weeks.

**Breakdown in vegetation:** Captan is taken up through leaves and roots and translocated throughout the plant. Residual fungitoxicity remains for 23 days after application on potato leaves, but residues were below the detection limit within 40 days after application. Some varieties of apples, pears, lettuce seeds, celery, and tomato seeds may be injured by Captan at high doses.

## Section 13 - Disposal Considerations

**Disposal:** 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

**Not subject to the ADG Code when transported by Road or Rail in containers up to 500kg. (ADG 7, Special Provision AU01).**

**ADG Code:** 3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

**Hazchem Code:** 2Z

**Special Provisions:** 179, 274, AU01

**Limited quantities:** ADG 7 specifies a Limited Quantity value of 5 kg for this class of product.

**Dangerous Goods Class:** Class 9: Miscellaneous Dangerous Goods.

**Packaging Group:** III

**Packaging Method:** P002, IBC08, LP02

Class 9 Miscellaneous Dangerous Goods shall not be loaded in the same vehicle or packed in the same freight container with Dangerous Goods of Class 1 (Explosives).

## Section 15 - Regulatory Information

**AICS:** All of the significant ingredients in this formulation are compliant with NICNAS regulations. The following ingredient: Captan, is mentioned in the SUSDP.

## 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 (7 <sup>th</sup> edition)
<b>AICS</b>	Australian Inventory of Chemical Substances
<b>ASCC</b>	Office of the Australian Safety and Compensation Council
<b>CAS number</b>	Chemical Abstracts Service Registry Number
<b>Hazchem Code</b>	Emergency action code of numbers and letters that provide information to emergency services especially firefighters

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<b>IARC</b>	International Agency for Research on Cancer
<b>NOS</b>	Not otherwise specified
<b>NTP</b>	National Toxicology Program (USA)
<b>R-Phrase</b>	Risk Phrase
<b>SUSDP</b>	Standard for the Uniform Scheduling of Drugs & Poisons
<b>UN Number</b>	United Nations Number

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 MUST REVIEW THIS MSDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS

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.

Please read all labels carefully before using product.

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

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## MATERIAL SAFETY DATA SHEET