

FARM-AG INTERNATIONAL (Pty) Ltd

P.O. Box 1523, Durban 4000

Head Office : 61 Marshall Dr., Old Mill Industrial Park, Mount Edgecombe **South Africa**

Registration Number: 2005/011761/07

Tel + 27 31 003 3486 • Fax + 27 31 502 5825

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: FARMAG CAPTAN 500 FS
Product Use: Fungicide
Creation Date: October 2015
Revision Date: September 17

24 Hr Emergency Number: 082 771 2712
In case of poisoning:
Poison Information Centre: 082 446 8946
Tygerberg Hospital: (021) 931 6129
Poison Emergency Enquiries (021) 689 5227
In case of Spillage:
HAZMAT: 0800 147 112

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Common name: Captab (South Africa)
Chemical Name: N-(trichloromethylthio)cyclohex-4-ene-1,2-dicarboximide (IUPAC)
CAS No.: 133-06-2
Chemical Family: N-trihalomethylthio
Chemical Formula: C₉H₈Cl₃NO₂S (Mol. Wt.: 300.6).
Use: Fungicide with protective and curative action.
Formulation: Captab: 500 g/kg
Flowable fungicide seed-dressing
UN number: 3082
Active Ingredient: Captab
SYMBOLS: Xn
RISK-PHRASE(S): R 36, R 40, R 43

SECTION 3 - HAZARD IDENTIFICATION

Toxicity class:
WHO Table; EPA – III A low toxicity fungicide.
Likely routes of exposure:
Skin and eye contact, inhalation and ingestion. The product may cause eye irritation.
Skin contact:
Minimally toxic. May cause mild skin irritation and may have moderate sensitizing properties (guinea pig).
Ingestion:
Minimally toxic.
Inhalation:
May be irritating to the respiratory system.

SECTION 4 - FIRST AID MEASURES AND PRECAUTIONS

Reactions are not likely to occur unless the absorbed dose is extraordinary. Symptoms of repeated exposure to the product may cause contact dermatitis. When product comes in contact with eyes the effect is redness of and tears.

Inhalation:
Remove source of contamination or move victim to fresh air and well-ventilated area. Monitor for respiratory distress. Give oxygen or artificial respiration if needed. Seek medical attention if necessary.
Skin contact:
Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary. Persons who become sensitized may require specialized medical management with anti-inflammatory agents.
Eye contact:
Immediately flush the eyes with gently flowing lukewarm water for 20 minutes. Obtain medical attention if necessary.
Ingestion:

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Wash out mouth thoroughly with clean water. In case of ingestion of significant quantities of the fungicide, medical advice should be sought immediately. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Advice to physician:

No specific antidotes are available against **Captan FS** poisoning. If a large amount of **Captan FS** has been ingested in the last few hours, and if copious vomiting has not already occurred, the stomach must be emptied and steps taken to limit gastrointestinal absorption. If the patient is fully alert and nervous system depression is not anticipated, it is recommended to empty the stomach. When vomiting stops after induced emesis, give activated charcoal and cathartic orally by adding sorbitol to the charcoal slurry.

Dosage of Activated Charcoal:

Adults and children over 12 years: 50 to 100 mg in 300 to 800 ml water. **Children under 12 years:** 15 to 30 mg in 100 to 300 ml water.

Dosage of Sorbitol:

Adults and children over 12 years: 1 to 2 mg/kg body weight to a maximum of 150 mg per dose.

Children under 12 years: 1.0 to 1.5 mg/kg body weight to a maximum of 50 mg per dose.

If sorbitol is given separately, it should be diluted with an equal volume of water before administration.

If there are any indications of central nervous system depression, or if the patient fails to vomit within 30 minutes of Syrup of Ipecac administration, measures should be taken to protect the respiratory tract from aspiration of gastric contents, then the stomach should be emptied by gastric intubation, aspiration and lavage with a slurry of activated charcoal. Install activated charcoal following lavage. Unless diarrhoea has already commenced, include a cathartic to hasten elimination.

CAUTION: Do not instill fluid so rapidly that overloading of the stomach leads to vomiting or regurgitation, followed by aspiration. Serious electrolyte disturbances may follow catharsis, especially in young children. If contact with the toxicant has been minimal, administration of charcoal without the cathartic, followed by careful observation of the patient, probably represent optimal management.

SECTION 5 - FIRE-FIGHTING MEASURES

Fire hazard and explosion hazard:

Slight fire hazard when exposed to heat or flame. Not highly flammable and not explosive.

Hazardous decomposition products:

Product releases CSCl_2 , HCl, SO_x , NO_x , CO and CO_2 when exposed to very high temperatures.

Extinguishing agents:

Extinguish small fires with carbon dioxide, dry or foam chemical. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. In case of large fires use water spray, fog or regular foam. Dike fire control water for later disposal.

Firefighting:

Fight fire from maximum distance. Remove container/bag from fire area if possible. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers/bags.

Avoid inhaling hazardous vapours. Keep upwind.

Personal protective equipment:

Fire may produce irritating or poisonous vapours (toxic oxides of carbon, nitrogen and sulphur) of combustion. Fire fighters and others that may be exposed should wear full chemical protective clothing and self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

Avoid contact with skin and eyes. Do not breathe in fumes. For personal protection see Section 8.

Environmental precautions:

Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

Occupational spill:

For small dry spills, sweep up with damp earth or sand or other suitable absorbent and taking care not to raise a dust cloud. Place the material into a clean, dry container and cover for subsequent disposal. All contaminated cleaning materials should be placed in closeable receptacles. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

SECTION 7 - HANDLING AND STORAGE REQUIREMENTS

Handling:

Avoid contact with eyes, prolonged contact with skin, and inhalation of dust and vapour. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the product gets inside. Then wash skin

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thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage:

Keep out of reach of unauthorized persons, children and animals. Store in its original labeled container/bag in shaded, well-ventilated area, away from heat, sparks and other sources of ignition - NO SMOKING. Store in dry area and protect from temperatures below 00C and above 500C. Avoid breaking the container/bag, spillage or leaks. Do not allow the product to become wet or overheated in storage, decomposition, impaired activity or fire may result. Not to be store next to foodstuffs and water supplies. Local regulations should be complied with.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:**Respirator:**

An approved full-face respirator suitable for protection from dusts and mists of pesticides is required. Limitations of respirator use specified by the approving agency and the manufacturer must be observed. Respirator with P2 filter is recommended. Acceptable exposure limit for

Captan:

TLV (USA): TWA: 5 mg/m³; A3 (1996)

Clothing:

Employee must wear appropriate protective (impervious) clothing, boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

Gloves:

Employee must wear appropriate chemical resistant protective gloves to prevent contact with this substance.

Eye protection:

The use of a face-shield is recommended.

Emergency eyewash: Where there is any possibility that an employee's eyes may be exposed to this substance; the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Pink to pinkish-white viscous liquid suspension.
Odour:	Faint odour – characteristic.
Explosive properties:	Not explosive.
Flammability:	Not highly flammable.
pH of a 1% aqueous solution:	6.1
Bulk density:	01.27 g/cm ³
Storage stability:	Stable for 2 years under normal, dry storage conditions in unopened bags/containers. The product is stable after 14 days at 54 oC (accelerated storage test).
Melting point:	158 to 164°C.
Boiling point:	Captab decomposes.
Vapour Pressure:	2.01 x 10 ⁻⁴ Pa at a temperature of 50°C (pure).
Octanol/Water partition coefficient:	KOW = 610.

SECTION 10 - STABILITY AND REACTIVITY**Stability:**

Considered stable in unopened containers/bags. Slowly decomposed by heat and moisture. No decomposition if stored and applied as directed.

Incompatibility:

Avoid contact with alkali materials, such as lime and Bordeaux mixture. Contact with these products will reduce fungicidal activity.

Hazardous reactions:

Hazardous polymerization will not occur.

Hazardous decomposition products: CSCl₂, HCl, SO_x, NO_x, CO and CO₂.

SECTION 11 - TOXICOLOGICAL INFORMATION

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{Technical data}

Acute oral LD50: >5000 mg/kg in rats.
Acute dermal LD50: > 2000 mg/kg in rats.
Acute inhalation LC50: 0.72 mg// in rats for 4 hours.

Dermal sensitization:

The product provokes moderate dermal sensitization by skin contact (Guinea pigs – maximization test).

Skin irritation:

Mildly irritant to skin of rabbits.

Eye irritation:

Irritating to eyes of rabbits.

Carcinogenicity:

A two-year study of **Captan** indicated duodenal tumors in mice after repeated administration of high dose levels. The NOEL (No Observed Effect Level) was 400 ppm. No evidence of carcinogenicity was observed in long-term studies with rats. Information on the mechanism of these tumors establishes a threshold for the duodenal tumors, and indicates that this tumor type is not relevant for human risk assessment at likely exposure levels.

Teratogenicity:

Animal studies did not detect any teratogenic effects. No human data available.

Mutagenicity:

Results taken from in-vivo tests suggest that the product is not mutagenic.

SECTION 12 - ECOLOGICAL INFORMATION**Degradability:**

The product is readily biodegraded in the environment.

Mobility:

The product has low mobility and does not leach.

Accumulation:

The product shows no tendency to bio-accumulate in aquatic organisms.

ECOTOXICOLOGY: For active ingredients:**Birds:**

LD50:	mallard ducks & pheasants	> 5000 mg/kg
	bobwhite quail	2000 – 4000 mg/kg

Fish: Toxic to aquatic organisms (fish and algae), in laboratory experiments. Low toxicity in actual use, due to its hydrolytic instability.

LC50 (96 h)	bluegill sunfish	0.072 mg//
	harlequin fish	0.3 mg//
	brook trout	0.034 mg//

Bees:

ED50 oral:	91 µg/bee
contact:	788 µg/bee

Daphnia:

LC50 (48 h) 7 to 10 ppm

Other Aquatic organisms: Moderately toxic to aquatic invertebrates.**SECTION 13 - DISPOSAL CONSIDERATION****Pesticide disposal**

Contaminated absorbents, used containers, surplus product, etc., should be burnt at > 1000°C in an incinerator, preferably designed for pesticide disposal, or buried in an approved landfill. Comply with local legislation applying to waste disposal. Do not allow material to contaminate ground water system and surface water.

Package product wastes:

Do not re-use empty container/bags for any other purpose. Do not contaminate dams, rivers, drinking water and boreholes with chemical or used container. Incinerate the material at a facility that complies with local, state and federal regulations.

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16. OTHER INFORMATION

To the best of FarmAg International (Pty) Ltd Protection's knowledge, the above information is true and accurate as of the date of preparation of this material safety data sheet. The above information is not intended to be exhaustive. Additional or other information may be required depending on actual conditions of use and handling. FarmAg International (Pty) Ltd makes no warranties, expressed or implied and shall not be liable for any damages or injury, howsoever caused, arising out of the use of this data sheet.