1. IDENTIFICATION OF THE SUBSTANCE

Product name: CAPTAB WP

Common name: Captan; 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: C_9H_8Cl_3NO_2S (Mol. Wt.: 300.6).

Use: Fungicide with protective and curative action.

Formulation: Captab: 500 g/kg Wettable Powder

UN number: 3077

Supplier: Universal Crop Protection (Pty) Ltd.

PO Box 801

Kempton Park, 1620, South Africa

Telephone: (011) 396 2233

Fax: (011) 396 4666

Website: www.villacrop.co.za

Emergency telephone: (011) 396 2233

083 326 9272

24 Hr Emergency Numbers:

Bateleur Trauma: 0860 333 911

(Client: Villa Crop Protection)

Red Cross Poison Information Centre: 021 658 5428

Tygerberg Poison Information Centre: 021 931 6129

Griffon Poison Information Centre: 082 446 8946

2. COMPOSITION / INFORMATION ON INGREDIENTS

Active Ingredient: Captab

SYMBOLS: X_n

RISK-PHRASE(S): R 36, R 40, R 43

3. HAZARDS IDENTIFICATION

Toxicity class:

WHO Table; EPA - III

A low toxicity fungicide.

Likely routes of exposure:

Skin and eye contact, inhalation and ingestion.

4. FIRST AID MEASURES AND PRECAUTIONS

Eye contact:

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.

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.

Ingestion:

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 poisoning. If a large amount of Captan 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.

Advice to physician:

No specific antidotes are available against Captan poisoning. If a large amount of Captan 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 catherisis, 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.

### 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 \( \text{CSCl}_2, \text{HCl}, \text{SO}_x, \text{NO}_x, \text{CO} \) and \( \text{CO}_2 \) 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.

### 6. ACCIDENTAL RELEASE MEASURES

**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.

### 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 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.
8. EXPOSURE / 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid – off-white amorphous wettable powder.

Odour: Faint odour – characteristic.

Explosive properties: Not explosive.

Flammability: Not highly flammable.

pH of a 1% aqueous solution: 6 to 9

Bulk density: 0.64 kg/l

Storage stability: Stable for 2 years under normal, dry storage conditions in unopened bags/containers. The product is stable after 14 days at 54 °C (accelerated storage test).

Solubility in water: Soluble in water.

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.

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:
C30Cl2, HCl, SOx, NOx, CO and CO₂.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀: > 5000 mg/kg in rats.

Acute dermal LD₅₀: > 2000 mg/kg in rats.

Acute inhalation LC₅₀: > 2.6 mg/l 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.
12. ECOLOGICAL INFORMATION

Degradability:
The product is readily biodegraded in the environment.

Mobility:
The product has no 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/l
   harlequin fish 0.3 mg/l
   brook trout 0.034 mg/l

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.

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.

14. TRANSPORT INFORMATION

UN NUMBER: 3077
ADR/IRD:
Class: 9
Substance ID no.: 3077
Hazard ID no.: 90
Label: 9
ITEM: 12(c)
PACKING GROUP: III
Shipping Name: Environmentally hazardous substance, solid, n.o.s. (contains Captan) 9, 12(c), ADR

IMDG/IMO:
Packaging group: III
Label of class: 9
Shipping name: Environmentally hazardous substance, solid, n.o.s. (contains Captan).
IMDG Page: 9029

15. REGULATORY INFORMATION

Symbol: X
Indication of danger: Harmful
Risk phrases:
R 36 May cause eye irritation
R 40 Possible risks of irreversible effects.
R 43 May cause sensitization by skin contact.

Safety phrases:
S 1/2 Keep locked up and out of reach children.
S 13 Keep away from food, drink and animal feeding stuffs.
S 22 Do not breathe dust.
S 24/25 Avoid contact with skin and eyes.
S 36/37 Wear suitable protective clothing and gloves.
16. PACKING AND LABELLING

Packed in 1, 2, 5, 10, 20, 25 & 50 kg paper lined bags and/or containers and labeled according to South African regulations and guidelines.

17. OTHER INFORMATION

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and is presented in good faith believed to be correct. This information applies to the PRODUCT AS SUCH. In case of formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulation(s) containing this product, it is the recipient’s sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

18. REFERENCES

- Applicable own physical and chemical, toxicity and ecotoxicity research studies.

END OF DOCUMENT

Compiled: March 2000
Reviewed: October 2013