



MATERIAL SAFETY DATA SHEET

PRODUCT : ETHEPHON 480SL
EFFECTIVE DATE : April 2020
REVISION NO : 3
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1. IDENTIFICATION OF SUBSTANCE AND COMPANY

PRODUCT NAME : ETHEPHON 480SL
COMMON NAME : Ethephon
CHEMICAL NAME : 2-chloroethylphosphonic acid
SUPPLIER : NOVA AGRO (HK) LTD
(Reg. No. 1023146)
6th Floor Wyndham Place
44 Wyndham Street
CENTRAL HONG KONG.

EMERGENCY TELEPHONE NUMBERS

SPILLAGES:

Emergency tel./ fax : (+27) 83-676 1998

POISONINGS:

National Poison Centre 021-9386084 (office hours
(South Africa) 021-9316129 (after hours).

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No. 16672-87-0
Chemical Family Ethylene generator
Chemical Formula $C_2H_6ClO_3P$ (Mol. wt.: 144.5)
NIOSH/RTECS no. SZ 7100000
UN no. 3265
Use Plant growth regulator.
Hazchem class 8
Hazardous components Ethephon 486 g/l
SYMBOLS C (Corrosive).
RISK-PHRASE(S) R20/ 21, R34, R 52/R53

3. HAZARD IDENTIFICATION

Main hazard: Corrosive! Causes eye and skin damage.
Toxicity class: WHO Table 5; EPA III. A low toxicity plant growth regulator.
Flammability: Not flammable. Gives off irritating or toxic fumes (gases) in a fire.
Biological hazards: Skin contact, ingestion and inhalation.
Eye contact: Corrosive. May cause severe eye irritation. Irritation may develop after exposure to mists, aerosols or vapors. Splash contact may cause corneal erosions and permanent tissue damage.
Skin contact: Severe dermal burns may occur with dermal exposure. Complications seen with dermal burns include cellulitis, sepsis, contractures, osteomyelitis, and systemic toxicity from absorbed acid.

Ingestion: Oral ingestion may produce mild to moderately severe oral and esophageal burns with more severe burns occurring in the stomach. Perforations are rare but may occur. The pyloric end of the stomach is most severely affected and is the site of delayed stricture occurring generally at 3 weeks after the ingestion.

Inhalation: Minimally toxic by inhalation. Over-exposure may result in dyspnea, pleuritic chest pain, pulmonary edema, hypoxemia, bronchospasm, pneumonitis, trachea-bronchitis and persistent pulmonary function abnormalities.

Reproductive hazard: See section 11.

Carcinogenicity: See section 11.

Mutagenicity: See section 11.

Neurotoxicity: See section 11.

4. FIRST AID AND MEDICAL MEASURES AND PRECAUTIONS

Inhalation: Remove source of contamination or move victim to fresh air. Keep person warm and at rest. Treat symptomatically and supportively. Obtain medical advice 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.

Eye contact: Immediately flush the eyes with gently flowing water or saline solution for 20 minutes, holding the eyelid(s) open. Seek medical attention.

Ingestion: Have victim rinse mouth thoroughly with water, give glass of milk. **DO NOT INDUCE VOMITING.** Do not give bicarbonate to neutralize. Activated charcoal is of no value. Passing a nasogastric or orogastric tube into the stomach is controversial at this time.

Do not perform gastric lavage if victim is unconscious. Administration of gastric lavage and oxygen should be performed by qualified medical personnel. Seek medical advice immediately showing container and label.

Advice to physician: The product is an acid. It is Corrosive; See product pH value.

ORAL EXPOSURE:

A. **DILUTION:** Immediately dilute with 120 to 240ml of milk or water in adults and 60 to 120ml in children.

B. **STEROIDS:** Steroid use is controversial. There is no good data in the literature to assess the efficacy of steroids for preventing stricture formation.

C. Observe patients with ingestion carefully for the possible development of esophageal or gastrointestinal tract irritation or burns. If signs or symptoms of esophageal irritation or

burns are present, consider endoscopy to determine the extent of injury.

D. Consultation with gastroenterology and/or GI surgery should be obtained in patients with suspected mucosal burns.

EYE DAMAGE ASSESSMENT: It may take 48 to 72 hours after the burn to correctly assess the degree of ocular damage. The basis of such an evaluation is the degree of corneal opacification and perilimbal whitening.

EYE DAMAGE TREATMENT: If ocular damage is minor, topical mydriatics and antibiotics may be sufficient. If more extensive, one or more of the following may be tried, only with ophthalmologic consultation: acetazolamide, timolol, steroids, EDTA, cysteine, NAC, penicillamine, tetracycline, soft contact lenses, insertion of a methylmethacrylate ring, or saran wrap suturing.

DERMATOLOGIC:

ACUTE EXPOSURE

Chemical burns to the skin are often associated with concurrent thermal burns and trauma. Complications seen with thermal burns including cellulitis, sepsis, contractures, osteomyelitis, may occur as well as systemic toxicity from absorbed acid. Deep or extensive burns may require grafting.

CHRONIC EXPOSURE

Prolonged or repeated exposure can result in dermatitis. Ulcerations may also occur. Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

This product will not burn.

Extinguishing agents: Extinguish **small surrounding fires** with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for **larger fires** or cooling of unaffected stock, but avoid the accumulation of polluted runoff from the site.

Firefighting: Remove container from fire area if possible. Contain fire control water for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Keep material out of sewers and water sources. Avoid inhalation of hazardous vapours. Keep upwind.

Special Hazards: Product is stable up to 75°C. Ethylene gas is released with decomposition of Ethophon

Personal protective equipment: Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

Do not inhale fumes. Ventilate area of spill or leak, especially confined areas. Avoid contact with skin, eyes or clothes. 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 spills**, soak up sand or suitable non-combustible absorbent material, place into containers for subsequent disposal. Thoroughly wash body areas, which come into contact with the product. Avoid runoff to sewer as it may cause fire/explosion. Do not allow the product to come in contact with water systems. For **large spills** contact the manufacturer. Contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Harmful by inhalation. Avoid contact with eyes and skin and inhalation of fumes. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Operators should change and wash clothing daily. 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

Storage:

Store in its original container in isolated, dry, cool (avoid temperatures above 40°C) and well-ventilated area. Avoid cross contamination with other pesticides and fertilizers. Product is stable in aqueous solutions of a pH<5. At higher pH the product decompose to ethylene. This product is sensitive for UV irradiation. Keep under lock and key out of reach of unauthorized persons, children and animals. Store away from incompatible substances. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

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8. EXPOSURE CONTROL / PERSONAL PROTECTION

Occupational exposure limits:

No occupational limits established by OSHA, ACGIH or NIOSH

Engineering control measures:

It is essential to provide adequate ventilation. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal equipment including approved respiratory protection.

Respirator: An approved full-face respirator suitable for protection from mists of pesticides is required. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing: Employee must wear appropriate protective (impervious) clothing and equipment to prevent skin contact with the substance.

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

Eye protection: Employee must wear splash-proof safety goggles and face-shield to prevent contact with this substance.

Emergency eye wash: 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: COLOURLESS TRANSPARENT LIQUID

Flammability: Non flammable

Explosive properties: No information currently available.

Flash point: Not applicable. The product contains water.

Oxidising properties: Corrosive to metal.

pH: pH 1.8

Relative density: 1.22 g/ml \pm 0.01g/l at 25°C

Storage stability: Stable for up to 3 years under normal warehouse and field conditions. Product is stable in aqueous solutions of a pH <5. At higher pH the product decompose to ethylene. This product is sensitive for UV irradiation. Will decompose at temperatures above 75°C

Solubility in water: Readily soluble in water.

Partition-coefficient in n-octanol / water:

(data for active substance) K_{ow} ($\log P_{ow}$) < -2.20 (25°C)

10. STABILITY AND REACTIVITY

Stability: Will decompose at temperatures above 75°C.

Stable for up to 2 years under normal warehouse and field conditions. Product is stable in aqueous solutions of a pH <5. At higher pH the product decompose to ethylene. This product is sensitive for UV irradiation.

Incompatibility: The product is compatible with alkaline materials and solutions containing metal ions, e.g. iron-, zinc-, copper-, and manganese-containing fungicides.

Do not physically mix concentrate directly with other pesticide concentrates; always dilute first.

Hazardous decomposition: Product undergoes decomposition at temperatures higher than 75°C. This product produces ethylene gas on decomposition.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀: 4250 mg/kg in rats.

Acute dermal LD₅₀: >5 000 mg/kg in rats.

Acute inhalation LC₅₀ (4 h): 13,11 mg/l air for rats.

Acute skin irritation: The product is a severe skin irritant.

Acute eye irritation: Corrosive, causes irreversible eye damage (rabbit).

Dermal sensitisation: The product is considered to be a dermal sensitiser (guinea pig).

Carcinogenicity: Animal studies did not detect any carcinogenic effects. No human information available.

Teratogenicity: Animal studies did not detect any teratogenic effects. No human information available.

Mutagenicity: Animal studies did not detect any mutagenic effects. No human information available.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY:

Birds: Practically non-toxic to birds.

Acute oral LD₅₀: > 10 000 mg/kg (bobwhite quail).

Fish: May pose a hazard to fish.

LC₅₀ (96 hr): 215.21 mg/(*Brachydanio rerio*)

Bees: Non-toxic to bees.

Daphnia: EC₅₀ (48 h): 283.74 mg/(*Daphnia similis*)

Algae: *Selenastrum capricornutum* EC₅₀ (96 h): 505 mg/l.

Chlorella vulgaris: 32 mg/l

Earthworms: Not toxic to earthworms.



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believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new 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 formulations(s) containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

REFERENCES

- *The Pesticide Manual*; 13th Edition; Editor Clive Tomlin; Crop Protection Publications, 2004.
 - *Pestline*; Material Safety Data Sheets for Pesticides and Related Chemicals; Volume II; Occupational Health Services Inc., 1991.
 - *MICROMEDEX*, International Healthcare Series.
 - *ADR-Vol. II (Annex B)*, January 1997.
 - *Dangerous Goods Regulations, IATA, 41st Edition, Effective 1 January 2000.*
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