Section 1 - Identification of The Material and Supplier

Sabakem Pty Ltd **Phone: 03 9629 3979**
Suite 809, Level 8, 2 Queen St **www.sabakem.com**
Melbourne VIC 3000 AUSTRALIA **Emergency: 1800 033 111**

Chemical nature:	Ethephon is (2-chloroethyl) phosphonic acid - an ethylene generator.
Trade Name:	**Sabakem Ethephon 720AC Growth Regulator**
APVMA Code:	**69257**
Product Use:	Plant growth regulator for use as described on the product label.
Creation Date:	**October 2013**
This version issued:	**June, 2024** and is valid for 5 years from this date.
Emergency telephone:	**Poisons Information Centre 13 11 26 (24 hours)**

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as hazardous according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) and Safe Work Australia criteria.

ADG Classification: Dangerous Goods Class 8, Corrosive Substances.
See details in Section 14 of this SDS.

Classification of the substance or mixture:

Acute Dermal Toxicity Category 4
Acute Inhalation Toxicity Category 4
Skin Corrosion /Irritation Category 1
Eye Damage Category 1

The following health hazard categories fall outside the scope of the Workplace Health and Safety Regulations

Chronic Aquatic Toxicity Category 2

GHS Signal word: DANGER

HAZARD STATEMENT(S):

H312: Harmful in contact with skin.

H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.
H332: Harmful if inhaled.
H411: Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENT(S):

PREVENTION

P260: Do not breathe fumes, mists, vapours or spray.
P262: Do not get in eyes, on skin, or on clothing.
P264: Wash contacted areas thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P273: Avoid release to the environment.
P280: Wear protective gloves, protective clothing and eye or face protection.

RESPONSE

P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTRE or doctor.
P312: Call a POISON CENTRE or doctor if you feel unwell.
P321: Specific treatment (see the label).
P362 + P364: Take off contaminated clothing and wash it before reuse.
P363: Wash contaminated clothing before reuse.
P391: Collect spillage.

STORAGE

P405: Store locked up.

DISPOSAL

P501: Dispose of contents and containers as specified on the registered label.

Section 3 – Composition/Information on Ingredients

Ingredients	CAS No	Conc. (% w/v)
Ethephon	16672-87-0	72.0

Other components are not considered hazardous in this formulation and therefore are not required to be disclosed according to the WHS Regulations.

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 SDS with you when you call.

If swallowed, splashed on skin or inhaled, contact a Poisons Information Centre or a doctor at once. Remove any contaminated clothing and wash skin thoroughly.

This product has the properties of a strong acid and may cause strong mucosal damage if swallowed. Appropriate conventional treatment for circulatory shock, respiratory depression and convulsions may be needed.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.

Skin Contact: Flush contaminated area with lukewarm, gently flowing water for at least 20-30 minutes. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting (show paramedics this SDS and take their advice). Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts). If irritation persists, repeat flushing. Seek medical attention.

Eye Contact: Quickly and gently, blot or brush away chemical. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 20-30 minutes, while holding the eyelid(s) open. Neutral saline solution may be used as soon as it is available. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting (show paramedics this SDS and take their advice). Take care not to rinse contaminated water into the unaffected eye or onto face. If irritation persists, repeat flushing. Call a Poisons Information Centre or a doctor urgently.

Ingestion: If swallowed, rinse mouth thoroughly with water and contact a Poisons Information Centre. Urgent hospital treatment may be needed.

First Aid Facilities: Eyewash and normal washroom facilities. Safety deluge showers should, if practical, be provided near to where this product is being used.

Major Health Hazards: Causes burns and eye damage and is harmful if inhaled or in contact with skin.

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 however there is little danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Fire decomposition products from this product are likely to be harmful if inhaled. Take suitable protective measures. This product is likely to decompose only after heating to dryness, followed by further strong heating.
Flammability class: Does not burn.

Suitable Extinguishing Media: Water fog or fine spray is the preferred medium for large fires. Try to contain spills, minimise spillage entering drains or water courses.

Special Protective Equipment and Precautions for Fire Fighters: In the event of fire and/or explosion do not breathe fumes and wear self-contained breathing apparatus and protective equipment.

Hazchem Code: 2X

Section 6 – Accidental Release Measures

Environmental precautions: In the event of a major spill, prevent spillage from entering drains or water courses with absorbent material. Because of the environmentally hazardous nature of this product, special care should be taken to restrict release to waterways or drains.

Methods and materials for containment and cleaning up: 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. Avoid using sawdust or other combustible material. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage and dispose of promptly. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal.

Personal precautions, protective equipment and emergency procedures: All skin areas should be covered. Wear full protective chemically resistant clothing including eye/face protection, gauntlets and self-contained breathing apparatus. Suitable materials for protective clothing include PVC, Nitrile. Use impermeable gloves with care. Eye/face protective equipment should comprise, as a minimum, protective goggles. Usually, no respirator is necessary when using this product however, if there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a suitable respirator. Refer to section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

If a significant quantity of material enters drains, advise emergency services.

Section 7 – Handling and Storage

Precautions for Safe Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS 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.

Conditions for Safe 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. 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

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

Engineering Controls: Ensure adequate ventilation of the working area.

Respiratory Protection: Ensure the work environment remains clean and that vapours and mists are minimised. If ventilation is inadequate, suitable respiratory protection should be worn, consult AS/NZS 1715 and AS/NZS 1716 for further information.

Eye and Face Protection: Your eyes must be completely protected from this product by splash resistant goggles with face shield. All surrounding skin areas must be covered. See Australian/New Zealand Standard Industrial Eye Protection: AS1336 and AS/NZS 1337 for more information. Emergency eye wash facilities should be provided in an area close to where this product is being used.

Skin Protection: It is essential that all skin areas are adequately covered. Prevent skin contact by wearing impervious gloves, overalls, hair covering, apron and face shield. PVC or rubber gloves. See Australian/New Zealand Standard AS/NZS 2161 for more information. When selecting gloves for use against certain chemicals, the degradation resistance, permeation rate and permeation breakthrough time should be considered. Occupational protective clothing (depending on conditions in which it has to be used, in particular as regards the period for which it is worn, which shall be determined on the basis of the seriousness of the risk, the frequency of exposure to the risk, the characteristics of the workstation of each worker and the performance of the protective clothing). See Australian/New Zealand Standard Occupational Protective Clothing: AS/NZS 4501 and Occupational Protective Footwear: AS/NZS2210 for more information.

Section 9 - Physical and Chemical Properties

Physical Description & colour:	Clear pale yellow to brown liquid.
Odour:	Characteristic, mild pungent odour.
Boiling Point:	Approximately 100°C at 100kPa.
Flash point:	Will not burn until water component is driven off.
Freezing/Melting Point:	Approximately 0°C.
Volatiles:	Water component.
Vapour Pressure:	2.37 kPa at 20°C (water vapour pressure).
Vapour Density:	No data.
Specific Gravity:	1.294 at 20°C
Water Solubility:	Completely soluble in water.
pH:	<2
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	No data
Autoignition temp:	Does not burn.

Section 10 – Stability and Reactivity

Possibility of Hazardous Reactions: 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.

This product is unlikely to undergo polymerisation processes.

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

Incompatibilities: Strong bases.

Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Oxides of phosphorus and other phosphorus compounds. 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.

Section 11 – Toxicological Information

Acute Toxicity: Product causes acute toxicity via dermal and inhalation route. Product is harmful if inhaled and in contact with skin.
Following is the acute toxicity data available for the active constituent Ethephon:
Acute oral toxicity - LD50 (Rat): 1564 mg/kg;
Acute dermal toxicity - LD50 (Rat) 983 mg/kg
Acute inhalation toxicity - LD50 (Rat) 3.26 mg/kg/4h
Acute animal toxicity studies in a few species show that via the oral and dermal routes, Ethephon is relatively non-toxic except in hens. In a rat study, Ethephon was administered by gavage for 13 weeks to 20 rats per sex per dose level at 0, 50, 100, and 200 mg/kg/day. Plasma cholinesterase and brain cholinesterase activity were found to be different from the controls at all dose levels. However, red blood cell cholinesterase activity did not differ from the controls in either sex of any dose group. Irritation of mucous membranes in rabbits was also reported. The same study indicated that the inhalation LC_{50} for rats was greater than 5 mg/l of air. EPA reported the acute oral LD_{50} to be 1.6 g/kg for rats; the acute dermal LD_{50} for rabbits to be greater than 5 g/kg; and the primary skin irritation score for rabbits to be 6.75 (corrosive). The oral LD_{50} for mice fed technical Ethephon was 2850 mg/kg; 5,000 mg/kg for rabbits; 4,200 mg/kg for guinea pigs; and an unreported 4,200 mg/kg for mammals. In a dog study, Ethephon was administered in the food to 4 dogs per sex per dose level at 0, 5.0, 25.0, or 187.5 mg/kg/day for 13 weeks. Plasma cholinesterase activity was depressed in both males and females at all dose levels. Red blood cell activity was depressed in the males (at all dose levels except 5.0 mg/kg/day at 8 weeks) and at the 25.0 and 187.5 mg/kg/day dose levels in the females. Brain cholinesterase activity was significant only in females dosed at 187.5 mg/kg/day.

If inhaled product may be irritating but is unlikely to cause anything more than mild transient discomfort.

Significant oral exposure is unlikely. However, this product is corrosive to the gastrointestinal tract. Severity depends on concentration and duration of exposure.

Skin Corrosion/Irritation: Causes severe skin burns and eye damage.
Available data shows that this product is toxic in contact with skin, but symptoms are not available. In addition, product is corrosive to the skin. Capable of causing moderate to severe burns with ulceration. Can penetrate to deeper layers of skin, resulting in third degree burns. Corrosion will continue until product is removed or neutralised. Severity depends on concentration and duration of exposure. Burns may not be immediately painful; the onset of pain may be minutes to hours.

Serious Eye Damage/Irritation: Causes serious eye damage.
This product is corrosive to eyes. It will cause severe pain, and corrosion of the eye and surrounding facial tissues. Unless exposure is quickly treated, permanent blindness and facial scarring is likely.

Respiratory or Skin Sensitisation: Based on classification principles, the classification criteria are not met.

Germ Cell Mutagenicity: Based on classification principles, the classification criteria are not met.
Ethephon studies in Salmonella typhimurium indicated no mutagenic effect up to 1,000 micrograms/100mL, without enzyme activation.

Carcinogenicity: Based on classification principles, the classification criteria are not met.
A carcinogenicity study was conducted in mice using 70.6-72.1% Ethephon. The doses were administered in feed at 0, 15.5, 156 or 1630 mg/kg/day to CD-1 mice for 78 weeks. No dose-related evidence of carcinogenicity/oncogenicity was reported.
No significant ingredient is classified as carcinogenic by IARC.

Reproductive Toxicity: Based on classification principles, the classification criteria are not met.

A developmental toxicity study was conducted on New Zealand white rabbits. The doses tested were 50, 100, or 150 mg/kg. The teratogenic NOEL was greater than 50 mg/kg/day (LDT or lowest dose tested). The number of litters at termination of the study were insufficient to determine teratogenic effects at the 100 and 150 mg/kg/day levels. The embryotoxic NOEL was 50 mg/kg/day; an increased average number of resorptions occurred. The maternal toxic NOEL was 100 mg/kg, while the maternal LEL was 250 mg/kg (HDT or highest dose tested); decreased body weight, food consumption and increased mortality occurred at this dose level. The foetal toxic NOEL was reported to be 50 mg/kg/day. The fetotoxic LEL was 100 mg/kg/day, at which decreased foetal viability was reported. In another study, doses of 0, 200, 750, and 1,500 ppm of 39% Ethephon were tested in a multigenerational rat reproduction study. The NOEL was reported to be greater than 1500 ppm (highest dose tested).

Teratogenic Effects: The NOEL for rat teratogenic effects is 600 mg/kg/day, while in the rabbit, the NOEL was reported to be 50 mg/kg/day based on foetal resorptions at higher dose levels tested.

Specific Target Organ Toxicity (STOT)—single exposure: Based on classification principles, the classification criteria are not met.

Specific Target Organ Toxicity (STOT)—repeated exposure: Based on classification principles, the classification criteria are not met.

Aspiration Hazard: Based on classification principles, the classification criteria are not met.

Chronic Health Effects: A chronic toxicity/oncogenicity study using Swiss albino mice included 85 mice fed diets containing 0, 4.5, 45, or 150 mg/kg/day of Ethephon for 78 weeks. Inhibition of plasma cholinesterase activity was significant at the 45 and 150 mg/kg/day dose levels in males and females. The No Observable Effect Level (NOEL) for plasma cholinesterase activity is 4.5 mg/kg/day for both sexes and the Lowest Effect Level for this effect was 45 mg/kg/day for both sexes. There appeared to be a dose-related decrease in red blood cell cholinesterase activity in females. There was significant depression in RBC cholinesterase activity at the 45 and 150 mg/kg/day dose levels, while females in the 4.5 mg/kg/day dose groups exhibited depression in RBC cholinesterase activity at 52 weeks and 78 weeks, which was not considered statistically significant. Because of the apparent dose-related decrease in RBC cholinesterase activity in females in the 4.5 mg/kg/day dose group, the NOEL for this effect in females is considered to be below 4.5 mg/kg/day, the lowest dose tested. RBC cholinesterase activity was nominally decreased in males at the mid- and high-dose groups. Brain cholinesterase activity was not different from control values at any dose level in males or females. In two-year feeding studies, rats receiving greater than or equal to 12,500 mg/kg diet showed no ill effect except at top dose levels toward the end of the trial. The highest dose without adverse effects reported in rats was 375 mg/kg/day for 90 days.

Additional toxicological information:

The ADI for Ethephon is set at 0.02mg/kg/day & the corresponding NOEL is set at 0.17mg/kg/day (Values taken from Australian ADI List, June 2013). ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level.

Ethephon is a weak to moderate cholinesterase inhibitor. Repeated minor exposures may have a cumulative effect.

Section 12 – Ecological Information

Ecotoxicity: Toxic to aquatic life with long lasting effects.
Effects on Aquatic Organisms: Laboratory and field studies indicate that Ethephon is slightly toxic to fish. Studies indicated LC_{50} values for fish of 170 mg/l for rainbow trout; and 180 mg/l for bluegill sunfish. Also, a 96-hour LC_{50} for rainbow trout ranged from 254 mg/l to 350 mg/l and for bluegill sunfish 222 mg/l to 300 mg/L.
Effects on Birds: Data indicate that technical-grade Ethephon is slightly toxic on an acute oral basis to bobwhite quail, and slightly toxic on a subacute dietary basis to bobwhite quail and mallard ducks. The acute oral LC_{50} in bobwhite quail is from 596 to 804 mg/kg. The acute oral LC_{50} is 3,750 ppm for mallard ducks and greater than 2,160 ppm in bobwhite quail. The average acute oral toxicity for formulated products is greater than 10,000 ppm in bobwhite quail, or practically non-toxic. Another source reported the oral LD_{50} for bobwhite quail to be 1,000 mg/kg. The chronic toxicity LC_{50} for birds was reported to be 804 mg/kg for quail and 3,750 ppm for ducks; and the LC_{50} (8 days) for mallard ducks was greater than 10,000 mg/kg diet.
Effects on Other Animals (Nontarget species): Ethephon is considered relatively non-toxic to honeybees.

Persistence and Degradability:

Breakdown of Chemical in Soil and Groundwater: Ethephon was found to have low to moderate mobility in soils ranging in texture from loamy sand to peat and silt loam based on soil thin layer chromatography tests. Therefore, the potential for contamination of groundwater appears to be low to moderate. In soil, rapid degradation to phosphoric acid, ethylene, and chloride ions was reported.

Breakdown of Chemical in Surface Water: No data available.
Breakdown of Chemical in Vegetation: In plants, Ethephon rapidly degrades to phosphate, ethylene, and chloride. Ethephon and the ethylene gas it produces are the major metabolites in plants. Residues of monochloroacetic acid may be found in Ethephon-treated commodities. Monochloroacetic acid is a potential degradation product of an impurity in Ethephon, monochloroethyl ester of (2-chloroethyl)-phosphonic acid.

Bioaccumulative Potential: No data available.

Mobility in Soil: Low to moderate mobility in soils.

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

Road and Rail Transport
Classified as Dangerous Goods Class 8, Corrosive Substances.
UN Number: 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS ETHEPHON)

Marine Transport:
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN Number:	3265
Proper Shipping Name or Technical Name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS ETHEPHON)
Transport Hazard Class:	8
Packaging Group	III
IMDG EMS Fire:	F - A
IMDG EMS Spill:	S - B
Environmental hazards:	Yes. Marine Pollutant: Ethephon
Additional Information:	The marine pollutant mark is not required when transported in sizes of ≤ 5 L or ≤ 5 kg.

Air Transport:
Classified as Dangerous Goods Class 8, Corrosive Substances.
UN Number: 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS ETHEPHON)

Section 15 – Regulatory Information

APVMA Approval no.: 69257

Poison schedule (SUSMP): Schedule 6

AICIS: All the constituents of this material are either listed on the Australian Inventory of Industrial Chemicals (AIIC), not required due the nature of the chemical as they are excluded as an industrial chemical or have been assessed under the Industrial Chemicals Act 1989 as amended.

Section 16 – Other Information

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

Issue Date: June 2024

Reason(s) for issue: Five-year update and updated to latest GHS requirements.

Key abbreviations or acronyms:
ADG Code - Australian Code for the Transport of Dangerous Goods by Road and Rail (7th edition)
AICIS – Australian Industrial Chemicals Introduction Scheme (formerly NICNAS)

AIIC - Australian Inventory of Industrial Chemicals
APVMA – Agricultural Pesticides and Veterinary Medicines Australia
CAS number - Chemical Abstracts Service Registry Number
GHS - Globally Harmonised System of Classification and Labelling of Chemicals (7th revised edition) 2017
Hazchem Code - Emergency action code of numbers and letters that provide information to emergency services especially firefighters.
IARC - International Agency for Research on Cancer
Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (June 2023)
STEL - Short term exposure limit means the average airborne concentration of a substance calculated over a 15-minute period. The STEL should not be exceeded at any time during a normal eight hour working day.
SUSMP - Standard for the Uniform Scheduling of Medicines & Poisons
SWA - Safe Work Australia, formerly ASCC and NOHSC
TGA – Therapeutic Goods Australia
TWA - Time-weighted average means the average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.
UN Number - United Nations Number
WHS – Workplace Health and Safety

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD STATEMENT: INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS 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 SDS is prepared in accord with the SWA document “Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice” ((June 2023) and GHS Revision 7