SAFETY DATA SHEET

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **Apparent Ethephon 720 Growth Regulator**

Other Names:	Ethephon, Plant Growth Regulator, 2-chloroethylphosphonic acid.
Use:	Plant growth regulator for use in cotton and other crops.
Company:	Apparent Pty Ltd
Address:	Suite G.08, 762 Toorak Road, Hawthorn East, Vic. 3123. PO Box 3092, Cotham PO, Kew, Vic 3101
ACN/ABN:	143 724 136
Telephone Number:	03 9822 1321
Email:	enquiries@apparentag.com.au
Emergency Contact:	0411 227 338

SECTION 2 HAZARDS IDENTIFICATION

Classified as hazardous according to criteria of Safe Work Australia.
Classified as a Dangerous Good according to the ADG Code.

GHS Classification:

Acute Toxicity – Inhalation: Category 4.
Skin Corrosion/Irritation: Category 1A to 1C.
Eye Damage/Irritation: Category 1.
Acute Toxicity- Dermal: Category 4.

Signal Word: DANGER.

Hazard Statements:

H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H332 Harmful if inhaled.
H402 Harmful to aquatic life.

Precautionary statements:

Prevention:

P260 Do not breathe vapours or spray.
P261 Avoid breathing vapours or spray.
P264 Wash hands, arms and face 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/eye protection/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): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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/physician.
P312	Call a POISON CENTRE or doctor/physician if you feel unwell.

SECTION 2 HAZARDS IDENTIFICATION (Continued)

Response (Cont):

P321 Do NOT induce vomiting.
P322 Specific measures see Safety Directions on the product label.
P363 Wash contaminated clothing before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/container in accordance with national regulations.

Pictogram:

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	***CAS NUMBER***	***PROPORTION***
Ethephon	16672-87-0	720 g/L
Other ingredients (including water) determined not to be hazardous		to 100%

SECTION 4 FIRST AID MEASURES

FIRST AID

Ingestion: If patient is conscious and alert, give 2-3 glasses of water to drink. **If swallowed DO NOT induce vomiting**. Give a glass of water. If swallowed, give one atropine tablet every 5 minutes until dryness of the mouth occurs. Seek immediate medical assistance.

Eye contact: Immediately hold eyes open and flood with clean water until chemical is removed. Seek immediate medical advice, preferably an ophthalmologist.

Skin contact: If poisoned by skin absorption or through lungs, remove any contaminated clothing, wash skin thoroughly and give atropine tablets as above. Wash skin thoroughly with soap and water. If skin is irritated, seek medical advice. Launder contaminated clothing before re-use.

Inhalation: Remove to fresh air and observe until recovered. If not breathing, give artificial respiration. Administer oxygen if necessary. Get medical attention.

Advice to Doctor: This product possesses the characteristics of a strong acid and may cause mucosal damage by swallowing. The primary toxicity of this product is due to its irritant properties on mucosal surfaces. However, appropriate conventional treatment for circulatory shock, respiratory depression and convulsions may be needed. In a patient with severe over-exposure by ingestion, careful gastric lavage is required due to the possibility of stomach or oesophageal perforation. Gastric lavage with charcoal is recommended following ingestion, and further treatment if necessary.

This product can produce mild cholinergic symptoms due to its mild cholinesterase inhibiting effect. No specific antidote is known. The usefulness of conventional treatment for cholinesterase inhibiting agents, i.e. atropinisation, has not been established for this product. Treat symptomatically.

Victims of severe over-exposure, by inhalation, should be kept under medical observation for up to 72 hours for delayed onset of pulmonary oedema. This material is an acid, but the use of alkaline substances to neutralize is contraindicated.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Non-combustible material. Generally considered a low risk due to the water content, but once the water has evaporated the product is combustible.

Extinguishing media: Extinguish fire using media suited to burning material. If containers are ruptured contain all runoff.

Hazards from combustion products: Non-combustible, however after evaporation of water, the residual material can burn if ignited and when burning will emit toxic fumes. Will not polymerise.

Precautions for fire-fighters and special protective equipment: Isolate fire area. Evacuate downwind residents. Firefighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or smoke. Do not breathe smoke or vapours generated.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Emergency procedures: In the event of a major spill, prevent spillage from entering drains or water courses. For major spills, wear overalls, elbow-length PVC gloves and face shield or goggles. In the case of spillage, stop leak if safe to do so, and contain spill. Prevent spillage entering drains or watercourses. Contain and absorb spilled material with absorbent material such as sand, clay, cat litter or material such as vermiculite. Collect recoverable product for use as labelled on the product. Vacuum, shovel or pump contaminated spilled material into an approved container and dispose of waste as per the requirements of Local or State Waste Management Authorities. Keep out animals and unprotected persons.
Ethephon is corrosive to metals. Flush equipment thoroughly with water after use.

Material and methods for containment and cleanup procedures: Wash spill area, tools and equipment, wash with a solution of soap and water. Follow this with a neutralisation step of washing the area with a bleach or caustic soda ash solution. Finally, wash with a strong soap and water solution. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected. Prevent runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Thoroughly launder protective clothing before storage or re-use.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: No smoking, eating or drinking should be allowed where material is used or stored. Product is harmful if swallowed. Attacks eyes and repeated minor exposure may have a cumulative poisoning effect. Protect eyes while using. When preparing spray and using the prepared spray wear elbow-length PVC gloves and face shield or goggles. Wash hands after use. After each day's use, wash gloves and face shield or goggles and contaminated clothing.

Conditions for Safe Storage: This product is classified as a Dangerous Good and should be stored according to the requirements for Dangerous goods storage. Store in the closed, original container in a well ventilated area away from children, animals, food, feedstuffs, seed and fertilisers. Do not store for prolonged periods in direct sunlight. This product is a Schedule 6 Poison (S6) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines:
No exposure limits have been assigned by Safe Work Australia to the ingredients in this product.

Biological Limit Values:
No biological limit allocated.

Engineering controls:
Keep containers closed when not in use. No special engineering controls are required, however make sure that the work environment remains clean and that vapours are minimised.

Personal Protective Equipment (PPE):
General: When preparing spray and using the prepared spray wear elbow-length PVC gloves and face shield or goggles. Wash hands after use. After each day's use, wash gloves and face shield or goggles and contaminated clothing.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)

Personal Hygiene: Product is harmful if swallowed. Attacks eyes and repeated minor exposure may have a cumulative poisoning effect. Protect eyes while using. Clean water should be available for washing in case of eye or skin contamination. Wash skin before eating, drinking or smoking. Shower at the end of the workday.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear colourless to pale yellow liquid.
Odour:	Characteristic mild odour.
Boiling point:	Approximately 100°C.
Freezing point:	Approximately 0°C.
Specific Gravity:	Approximately 1.3.
Solubility in Water:	Soluble in water.
pH:	Approximately 2.
Flammability:	Not flammable.
Corrosive hazard:	Corrosive.
Flashpoint (°C):	Not flammable.
Poisons Schedule:	This product is a schedule 6 (S6) poison.
Formulation type:	Soluble concentrate (SL).

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: Product is considered stable in ambient conditions for a period of at least 2 years after manufacture.

Conditions to avoid: Do not store for prolonged periods in direct sunlight.

Incompatible materials: Incompatible with alkaline materials, metallic salts and metals such as iron, copper and aluminium. Ethephon is corrosive to acrylic plastics, certain paints and metals. Flush and rinse all exposed equipment, including aircraft surfaces, with detergent and water after use.

Hazardous decomposition products: Product is likely to decompose after heating to dryness and continued strong heating and will emit toxic fumes including hydrogen chloride and ethylene.

Hazardous reactions: Polymerisation will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

No specific data is available for this product as no toxicity tests have been conducted on this product. Information presented is our best judgement based on similar products and/or individual components. As with all products for which limited data is available, caution must be exercised through the use of protective equipment and handling procedures to minimise exposure.

Potential Health Effects:

ACUTE EFFECTS

Swallowed: Corrosive to the mouth, throat, oesophagus and stomach. Acute oral LD_{50} (rat) > 2000 mg/kg (similar product).

Eye: Attacks the eyes. Corrosive to eyes. Contact can cause corneal damage. Contamination of eyes can result in permanent damage.

Skin: Corrosive to the skin and may cause skin burns. Acute Dermal LD_{50} (rabbit) 1710 - 2210 mg/kg (similar product). Not a sensitiser.

Inhaled: Corrosive to the mouth, throat and lungs. Acute inhalation LC_{50} (rat) 4.5 mg/L/4 hours (similar product).

Long Term Exposure:

Chronic toxicity: Prolonged contact can cause chronic bronchitis. Repeated minor exposure may have a cumulative poisoning effect. Ethephon did not cause carcinogenic or mutagenic effects and did not cause reproductive effects in animal studies. This product contains an organophosphorus compound and is therefore expected to be a cholinesterase inhibitor.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

Two studies using Ethephon were conducted in humans. In the first study, some symptoms characteristic of anticholinesterase activity was observed. Five humans of each sex were dosed with Ethephon at an average dose level of 1.8 mg/kg/day. Subjects receiving the test compound reported the symptoms and/or signs including sudden onset of diarrhoea or an urgency of bowel movements, stomach cramps or gas and increased urgency or frequency of urination, and either an increase or decrease in appetite. None of the control subjects had complaints similar to the test group. In the second human study, 10 humans of each sex were administered Ethephon at 0.5 mg/kg/day for 16 days, followed by a 2-week recovery period. Dose related effects occurred in plasma cholinesterase activity, but not in red blood cell cholinesterase activity. The effect was reversible within 15 days. When the control group and test groups were compared, the decreased plasma cholinesterase activity was statistically significant.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: No data is available on this product. The active ingredient, Ethephon, has moderate to low toxicity to birds with and eight-day dietary LC_{50} > 10000 mg/kg (Mallard duck) and an acute LD_{50} = 1000 mg/kg (Bobwhite quail). Low toxicity to fish with 96 hour LC_{50} > 350 mg/L (Rainbow trout); 300 mg/L (Bluegill sunfish). Non toxic to bees and earthworms.

Environmental Fate: Ethephon is rapidly degraded in both plants and soil. Ethephon has low mobility in soil and is unlikely to leach. Breaks down in UV radiation.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills and Disposal: Persons involved in cleanup require adequate skin and eye protection - see Section 8. Keep material out of streams and sewers. Vacuum, shovel or pump waste into an approved drum. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities. In rural areas, if there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals (ChemClear®).

Disposal of empty containers: Triple-rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.

drumMUSTER is the national program for the collection and recycling of empty, cleaned, non returnable crop production and on-farm animal health chemical containers. If the label on your container carries the drumMuster symbol, triple rinse the container, ring your local Council, and offer the container for collection in the program.

SECTION 14 TRANSPORT INFORMATION

Transport: This product is classified as a Dangerous Good. UN No. 3265, Class 8, with label "Corrosive 8", Packaging Group III. Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC N.O.S. Hazchem Code: 2XE. Initial Response Guide No. 37. Do not load with Dangerous Goods Class 1, 4.3, 5.1, 5.2, 7, foodstuffs or foodstuff empties.
This product is a Schedule 6 Poison (S6) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 15 REGULATORY INFORMATION

Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a Schedule 6 poison.
This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 69191.

SECTION 15 REGULATORY INFORMATION (Continued)

This product is classified as a Hazardous Substance under the criteria of Safe Work Australia Xn: Harmful, C: Corrosive.
This product is classified as a Dangerous Good according to the ADG Code (7th Ed), the International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA).
Requirements concerning special training:
Check State or Territory regulations that require people who use pesticides in their job or business to have training in the application of the materials.

SECTION 16 OTHER INFORMATION

Issue Date: 24 November 2016. Valid for 5 years till 24 November 2021. (Revised GHS classification).

Key to abbreviations and acronyms used in this MSDS:

ADG Code:	Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail).
Carcinogen:	An agent which is responsible for the formation of a cancer.
Genotoxic:	Capable of causing damage to genetic material, such as DNA.
HSIS:	Hazardous Substances Information System.
Lacrimation:	The production, secretion, and shedding of tears.
Lavage:	A general term referring to cleaning or rinsing.
Mutagen:	An agent capable of producing a mutation.
OCS:	Office of Chemical Safety.
Pneumonitis:	A general term that refers to inflammation of lung tissue.
PPE:	Personal protective equipment.
Teratogen:	An agent capable of causing abnormalities in a developing foetus.
TWA:	The Time Weighted Average airborne concentration over an eight-hour working day, for a five day working week over an entire working life.
Safe Work Australia:	Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC).

References

1. “Search Hazardous Substances”. HSIS. Safe Work Australia website. (2016).
2. “Approved Criteria for Classifying Hazardous Substances” 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.
3. Globally Harmonized System of Classification and Labelling of Chemicals (GHS). United Nations, 2009.

This SDS 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 should read this SDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

End SDS