

POISON

KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

TITAN

Ethephon 720

Growth Regulator

ACTIVE CONSTITUENT:

720g/L ETHEPHON (an anti-cholinesterase compound)

For anti-lodging in barley or crop thinning, loosening or ripening in various crops and for accelerating boll opening, defoliation and pre-conditioning before defoliation of cotton as specified in the Directions for Use table.

IMPORTANT: READ THOROUGHLY BEFORE OPENING OR USING THIS PRODUCT.

APVMA Approval No.: 64089/0609

Pack Size: 20L, 200L, 1000L



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IN A TRANSPORT EMERGENCY

DIAL 000

POLICE OR FIRE BRIGADE



UN No. 1760
CORROSIVE LIQUID, N.O.S.,
MISCIBLE WITH WATER
PACKAGING GROUP: III
HAZCHEM CODE: 2X

DIRECTIONS FOR USE:

- Restrains:** DO NOT apply to weak or stressed plants.
 DO NOT pre-condition with sodium chlorate before applying this product.
 DO NOT apply if cotton buds have been killed by frost.
 DO NOT apply if rain is expected within 8 hours of application.
 DO NOT apply if day/night temperatures are expected to fall below 18°C.
 DO NOT mix with hard (alkaline) water.
 DO NOT apply before sufficient mature unopened bolls have developed to produce the desired yield.

CROP	ACTION	STATE	RATE (High volume)	WHP	CRITICAL COMMENTS	
APPLES: Jonathon, Delicious	Advancement of maturity, improvement of red colour	QLD, NSW, VIC, SA, WA only	35 to 65mL PLUS 20mL X-77® non-ionic wetter per 100L water (add "stop drop")	7 days	Ensure fruit has reached marketable size before treatment and keep trees under observation after spraying. Apply 2 to 3 weeks before normal harvest period and 7 to 14 days before desired harvest date. Ensure fruit is picked at the correct stage of maturity, as fruit not harvested will quickly become over-ripe. Note: For best results spray when temperatures are between 15° and 32°C. Continuing low temperatures will advance maturity but may reduce colouration, so use lower rate. Use higher rate for quicker response. Add a "stop-drop" to prevent premature loosening of fruit. Thorough coverage is essential. Apply to fruit only for the fresh fruit market or short term storage.	
Tydeman's Early		TAS only	25mL/100L water (add "stop drop")			
Gravenstein, Golden Delicious, Jonathon and Red Delicious	Thinning*	VIC, SA only	15mL PLUS 20mL X-77 non-ionic wetter per 100L water			Apply at full bloom OR up to 1 week following full bloom. A second thinning spray 10 to 14 days after the TITAN Ethephon 720 Growth Regulator spray may be necessary. On Gravenstein and Golden Delicious apply carbaryl or 5 to 7.5 ppm NAA (use higher rate for maximum thinning). On Jonathon and Red Delicious apply carbaryl or 4 ppm NAA.
Golden Delicious, Stark Crimson and Legana		TAS only	35mL PLUS 20mL X-77 non-ionic wetter per 100L water			Apply at the balloon blossom stage using a high volume sprayer at 4000L/ha. DO NOT apply if rain is imminent. DO NOT use in sequence or in mixtures with NAA. If maximum temperatures are below 13°C after spraying, inadequate thinning may result, or if above 18°C excessive thinning may result.
Golden Delicious, Red Delicious, Jonathon, Granny Smith		WA only	35 to 40mL PLUS 20mL X-77 non-ionic wetter per 100L water			Only use high concentration when heavy set expected.
Lady William		WA only	45 to 65mL PLUS 20mL X-77 non-ionic wetter per 100L water	Only use high concentration when heavy set expected. *Note: For all thinning applications: The complex nature of fruit set and the possible variable action of chemical thinners due to weather conditions, make it difficult to give set recommendations and growers should consult their local agronomist.		
All varieties	Aid complete removal of fruit from trees and encourage a biennial bearing habit (Excessive vegetative growth will be suppressed and the following bloom stimulated.)	NSW, SA, WA only	65 to 135mL PLUS 25mL X-77 non-ionic wetter per 100L water	7 days	Apply just prior to full bloom OR 5 to 6 weeks later during early morning or late afternoon when slow drying conditions occur. Ensure thorough coverage of foliage and flowers or fruit. Note: Under normal weather conditions use lower rate for Delicious and higher rate for Jonathans as they are difficult to de-fruit. Consult the local Department of Agriculture for specific recommendations on other varieties. Warm weather following treatment will improve results, but if temperatures below 18°C prevail after spraying, fruit removal may be reduced, in the latter case use a higher dose rate. Fruit will loosen in 7 to 10 days and thinning should be complete within 2 to 3 weeks. Limbs can be lightly shaken to aid removal after this time.	
	Retard vegetative growth and stimulate flowering of young apple trees in the following season.		65 to 135mL PLUS 25mL X-77 non-ionic wetter per 100L water			Apply from full bloom to 6 weeks after full bloom. Ensure thorough coverage. Trees should be large enough to support an increased crop of apples before being treated. Increase rate towards 135mL/100L to maximise thinning and stimulation of blooms during the following season. Note: Better results will be achieved if daminozide at 1000 ppm is added. DO NOT apply if harvesting fruit in same season as flowers or fruitlets will be partially or completely thinned.
Barley	Anti-lodging	QLD, NSW, VIC, TAS, WA only	335 or 500mL/ha	1 day	Use the higher rate on tall, vigorous crops, on varieties susceptible to heavy lodging and on irrigated crops. Apply once only, between early to late boot stage, but before awns or spikes emerge. DO NOT apply to crops under moisture or disease stress or to crops that have already lodged. DO NOT apply if rain is expected within 4 hours or if temperature is less than 18°C.	
Barley varieties: Weeah Malebo Parwan only		SA only				

CROP	ACTION	STATE	RATE (High volume)	WHP	CRITICAL COMMENTS
Cherries: Ron's Seedling, St. Margaret, Napoleon, Florence	Promote evenness of maturity; early colour development	NSW only: Young district	20mL/100L water	7 days	<p>Treatment with TITAN Ethephon 720 Growth Regulator: Apply when approximately 20% of the fruit show pink to red colour development, normally 7 to 10 days before harvest. Ensure thorough coverage of leaves and fruit.</p> <p>Note: High temperature at spraying or following spraying may accelerate results.</p> <p>DO NOT spray when mean daily temperatures exceed 32°C.</p> <p>DO NOT spray when rain is expected within 24 hours OR when temperatures are low (17°C or less) as this will delay or reduce the effect of TITAN Ethephon 720 Growth Regulator.</p> <p>Fruit will mature 3 to 5 days earlier than normal and will be loosened to allow easier harvesting. A high proportion of fruit will readily separate from the stalk when harvested.</p>
		Orange/ Bathurst district	40mL/100L water		
TABLE GRAPES Barlinka	To promote early uniform colouring	NSW, SA only	15 to 20mL PLUS 20mL X-77 non-ionic wetter per 100L water	14 days	<p>Apply when 5 to 30% of the berries are coloured (2-4 weeks prior to expected harvest). Use the higher rate to maximise the colouring effects required. Ensure thorough coverage of bunches although the foliage need not be completely covered.</p> <p>Note: TITAN Ethephon 720 Growth Regulator may slightly reduce firmness of grapes.</p> <p>DO NOT use on grapes intended for long storage.</p>
Red Emperor, Red Prince, Red Malaga, Cardinal, Muscat of Hamburg		NSW, VIC, SA, WA only	25 to 40mL PLUS 20mL X-77 non-ionic wetter per 100L water		
Flame Seedless		WA only			
WINE GRAPES Semillon	Aids to mechanical harvesting	NSW only	40 to 130mL PLUS 100mL X-77 non-ionic wetter per 100L water	7 days	<p>Apply 7 days before expected harvest. Thorough coverage of upper and lower leaf surfaces is essential.</p> <p>Note: Some leaf yellowing and leaf fall, which is not detrimental to vines, may occur. The concentration to use will depend on a number of factors such as seasonal conditions, crop size, weather conditions, before and after application, and trellis type. Therefore, before applying consult the local Department of Agriculture for specific recommendations.</p>
MANDARINS Imperial	Thinning to increase fruit size, to reduce size of heavy crop and to even out the production cycle	QLD, NSW, SA, WA only	35 to 40mL/ 100L water	Not re- quired	<p>Apply during the early stage of fruit development for thinning and correction of the habit of alternate heavy and light crops. Apply as foliar spray when fruitlets are about 10 to 15mm in diameter and when natural fruit drop is occurring. This is usually in November in Qld, December in SA and intermediate in NSW, WA and VIC. Weather conditions influence the degree of thinning and care must be taken not to over-thin.</p> <p>Note: Fruitlets should fall off 7 to 14 days after application. Aim to apply 13 to 15L of spray per 4 to 5m high tree. Use the higher rate when a very heavy crop is evident.</p> <p>DO NOT apply in cold weather (less than 18°C) OR when rain is likely within 1 to 2 days of spraying.</p> <p>DO NOT add surfactants or wetting agents as leaf fall may be increased. See also General Instructions.</p>
		Vic only	25 to 35mL/ 100L water		
ORANGES Navel		NSW, WA only	35 to 40mL/ 100L water		
Valencia		NSW, SA, WA only			
		VIC only	40 to 45mL/ 100L water		
MACADAMIA NUTS Own Choice	Aid harvesting by promoting uniform nutfall	NSW, WA only	165mL PLUS 20mL X-77 non-ionic wetter per 100L water	7 days	<p>Apply late March to early May when nuts are mature. Vary rate according to degree of loosening required. Note: Nuts will be stimulated to fall within 10 to 14 days after spraying. Mechanical shaking may be used 7 to 10 days after spraying. Ensure thorough coverage of foliage and nuts. Ensure tops and insides of trees are adequately sprayed. A small quantity of older leaves will fall after treatment, but production will not be adversely affected.</p> <p>DO NOT use on Teddington variety.</p>
H2 Variety			55 to 105mL PLUS 20mL X-77 non-ionic wetter per 100L water		
PEACHES	Advancement and concentration of maturity	VIC only: Goulburn Valley	15mL PLUS 20mL X-77 non-ionic wetter per 100L water	6 weeks	<p>Apply once as foliar spray after commencement of the final fast growth stage. Timing depends on variety. Determine by measuring twice weekly, fruit circumference, of 20 tagged fruit/block. After rapid growth stage determined, wait 3 to 4 days for further confirmation, then spray. Thorough coverage is essential.</p> <p>Note: Instances have been recorded where this product, when applied in peaches at apparently the correct time, has resulted in premature fruit drop, fruit gumming and fruit splitting. See also General Instructions.</p>

CROP	ACTION	STATE	RATE		WHP	CRITICAL COMMENTS
			General	Boom Sprayer		
PINEAPPLES (plus Urea)	Initiation of flowering	QLD, WA only	80mL + 5kg Urea/100L water (Apply 30mL solution/plant)	1.6 + 100kg Urea in 2000L water/ha (Boom spray)	7 days	Apply in March. Note: Rate should be doubled for plant crops which are growing vigorously at the time of application.
			40mL + 5kg Urea/100L water (Apply 30mL solution/plant)	0.8 + 100kg Urea in 2000L water/ha (Boom spray)		Apply in May-June OR September-October. Note: See above – February/March application of Urea.
PINEAPPLES (without Urea)	Initiation of flowering in ratoon		25mL/10L water (Apply 30mL solution/plant)	6.0L in 2000L water/ha (Boom spray)		Apply February-March. Note: Use on the final crop in the block before eradication of the crop. Pineapples treated at the above time will be ready for picking 7 to 10 months after application.
			7mL/10L water (Apply 30mL solution/plant)	1.5L in 2000L water/ha (Boom spray)		Apply in May-June OR September-October. Note: See above – February/March application without Urea.
PINEAPPLES	Fruit ripening		–	1.7L in 1000L water/ha		TITAN Ethephon 720 Growth Regulator for ripening should only be used on even crops successfully induced for flowering with TITAN Ethephon 720 Growth Regulator. DO NOT use on fields intended for ratoon production. Treatment should be made when the forced fruit are beginning to show the first colour break. An initial harvest may be necessary to remove more advanced fruit before applying TITAN Ethephon 720 Growth Regulator. The remaining treated fruit will be ready for harvest at least 7 days following the TITAN Ethephon 720 Growth Regulator ripening application. Note: DO NOT use on fruit intended for the fresh fruit market. TITAN Ethephon 720 Growth Regulator for ripening is NOT SUITABLE FOR USE ON SUMMER PLANT CROPS because of scattered fruiting and high risk of forcing young suckers. Where natural fruiting has occurred prior to chemical induction, these natural fruit must be picked before TITAN Ethephon 720 Growth Regulator ripening. Treatment too early can result in a loss of yield and a reduction in fruit sugar levels.

CROP	ACTION	STATE	RATE (High volume)	WHP	CRITICAL COMMENTS
SUGAR CANE	Cane ripening	QLD, NSW, WA only	1L/ha	6 weeks	Use in March-April to accelerate ripening in cane and increase c.c.s. Use on cane planted for early harvest, with harvest no later than August. Apply to actively growing and non-stressed cane with at least eight non-stressed green leaves. Cane varieties Q115, Q119, Q137, Q124, Q96, H56-752 and CP44-101 have all shown high to moderate response to ethephon. Shortening of some internodes and yellowing of leaves may occur without any effect on cane yield. Test any new varieties prior to application.
TOMATOES	Accelerate ripening, increasing yield	ALL STATES	1.2L in 440 to 880L water per hectare	7 days	Apply once in the season. Ensure thorough coverage of fruit and foliage, when fruit is 5 to 30% pink or red. To determine this pull a few plants, shake off all fruit, weigh and determine above percentage. Optimum harvest maturity is expected 14 to 21 days after spraying. DO NOT use on greenhouse crops. Note: Temperatures below 18°C retard colour development and may extend the interval between treatment and harvest. Treatment may cause some yellowing of foliage or defoliation. Sun scald or exposed fruit may occur under high temperature conditions following treatment.

CROP	SITUATION	STATE	RATE/HA	CRITICAL COMMENTS
Cotton	Defoliation, acceleration of boll opening	QLD, NSW only	2.0L to 3.0L in min. 20L water	Application to be made when there are sufficient unopened bolls present to obtain the desired yield. Higher rates are used when the following conditions apply: a) on stressed plants b) on a heavy crop with plenty of foliage present c) if day/night temperatures are likely to drop below 22°C within 5 days of application.
	Pre-conditioning of crop before a normal defoliation is to occur		1.3L in min. 20L water	Application to be made when there are sufficient unopened bolls present to obtain the desired yield. The defoliant can then be applied at a time interval 4-7 days later. Ensure thorough coverage of bolls.
	Defoliation #		0.5-1.0L	Use in a tank mix with a registered rate of DROPP*. Apply when there are sufficient unopened bolls to produce the desired yield. Total application volume should be no less than 20.0L/ha. Ensure thorough and uniform coverage of bolls and leaves. # This mixture will also provide some acceleration of boll opening, however a subsequent application of a boll opener may be required to complete boll opening.

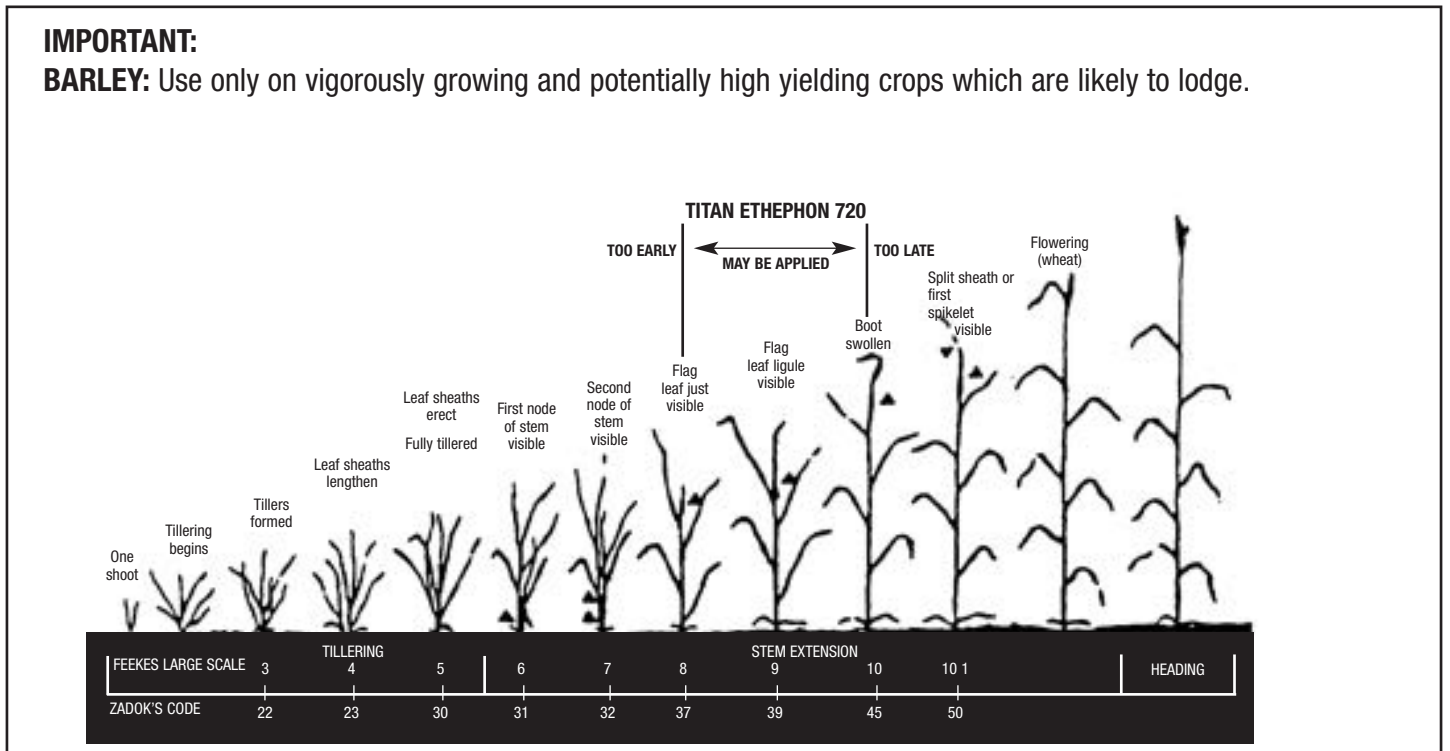
NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

WITHHOLDING PERIODS:

BARLEY: DO NOT HARVEST FOR 1 DAY AFTER APPLICATION.
APPLES, CHERRIES, MACADAMIA NUTS, PINEAPPLES, TOMATOES, WINE GRAPES: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.
TABLE GRAPES, COTTON: DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION.
PEACHES AND SUGAR CANE : DO NOT HARVEST FOR 6 WEEKS AFTER APPLICATION.

IMPORTANT:

BARLEY: Use only on vigorously growing and potentially high yielding crops which are likely to lodge.



GENERAL INSTRUCTIONS

IMPORTANT

Apples

– advancement of fruit maturity and improvement of red colour:

- * Ensure fruit has reached marketable size before treatment and keep trees under observation after spraying.
- * Ensure fruit is picked at the correct stage of maturity, as fruit not harvested will quickly become over-ripe.
- * Continuing low temperatures will advance maturity and colouration; continuing warm to high temperatures, both day and night, will advance maturity but may reduce colouration.
- * Apply to fruit only for the fresh fruit market or short term storage.

Apples – Thinning:

The complex nature of fruit and the possible variable action of chemical thinners due to weather conditions, make it difficult to give set recommendations and growers should consult their local agronomist.

Apples – Fruit Removal:

- * Apply to trees to remove unwanted fruit and encourage a biennial bearing habit. Excessive vegetative growth will be suppressed and bloom the following season stimulated.
- * Weather conditions are very important – warm weather following treatment will improve results, but if temperatures below 18°C prevail after spraying, fruit removal may be reduced. In the latter case, use the higher dose rate.
- * Fruit will loosen in 7-10 days and thinning should be complete within 2-3 weeks. Limbs can be lightly shaken to aid removal after this time.

Barley:

Use only vigorously growing and potentially high yielding crops which are likely to lodge.

Imperial Mandarins and Valencia Oranges:

Apply during the early stage of fruit development for thinning and correction of the habit of alternate heavy and light crops. Weather conditions influence the degree of thinning and care must be taken not to over-thin.

EXCLUSION OF LIABILITY: As the degree of thinning may vary according to the conditions and over-thinning is possible, the decision to incur these risks is taken by the user, and the manufacturer and vendor exclude themselves from all conditions, representations, warranties, whether expressed or implied by statute or otherwise and accept no responsibility for any losses which follow from the use of the product on mandarins or oranges as far as this is legally possible under the Trade Practices Act or any State legislation.

Cotton:

A foliar spray with TITAN Ethephon 720 Growth Regulator will accelerate opening of mature unopened bolls and enhance defoliation, which can result in earlier harvest and increased recoverable yield and quality. Some premature drop of small immature bolls may occur. Harvest at optimum boll opening and optimum defoliation. Too late harvest may reduce quality and lint.

APPLICATION – COTTON

DO NOT apply before sufficient mature unopened bolls have developed to produce the desired yield of cotton. Bolls are mature when the seed coat turns light brown, the embryo fills the seed cavity with an abundance of creamy colour and cotyledons are well defined.

TREATMENT SEQUENCE – COTTON

- **Light canopy:** Apply TITAN ETHEPHON 720 then apply defoliant 4 to 7 days later.
- **Moderate to heavy canopy:** First apply a pre-conditioner, then apply TITAN Ethephon 720 Growth Regulator as soon as sufficient leaves have dropped to expose the large bolls, usually 4 to 10 days later.

APPLICATION METHOD – COTTON

Apply by placement technique under the following range of conditions to achieve a target droplet density of 60 droplets per square cm.

Wind Direction: Cross Wind Wind speed range: 6-20kph

Air Temperature: Maximum 32°C Delta t: Maximum 10°C

Sugar Cane:

TITAN Ethephon 720 Growth Regulator may be applied by air or ground spray equipment. Apply in 30 L water/ha by air, and 110-150L water/ha by ground spray equipment. Apply during March-April on cane due for harvest no later than August. Consult your BSES officer.

Tomatoes:

- * Temperatures below 18°C retard colour development and may extend the interval between treatment and harvest.
- * Treatment may cause some yellowing of foliage or defoliation.
- * Sun scald of exposed fruit may occur under high temperature conditions following treatment.

MIXING

Half fill the spray tank with water, add the required amount of product then the remainder of water and mix well. DO NOT use alkaline water.

EQUIPMENT USAGE AND CLEANING

This product is corrosive to metals. Mix only the quantity of spray required for immediate use and do not allow to stand in metal containers for longer than 2 hours. Flush equipment thoroughly after use. Use only properly calibrated and maintained spraying equipment.

COMPATIBILITY

DO NOT tank mix this product with sodium chlorate. This mixture will, when heated, emit toxic chlorine fumes.

PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS

DO NOT apply under weather conditions, or from spraying equipment, that may cause spray to drift onto nearby susceptible plants/crops, cropping lands or pastures. Wash sprayer thoroughly after use.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

STORAGE AND DISPOSAL

Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight. Triple or preferably pressure 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 bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

For refillable containers, Empty contents fully into application equipment. Close all valves and return to point of supply for refill or storage.

1000L: Store in the closed original container in a cool, well-ventilated area. DO NOT store for prolonged periods in direct sunlight. Storage must be secure so that contents cannot be tampered with. All locks and/or seals must be in order. If locks or seals are broken prior to initial use then the integrity of this product cannot be assured. If this occurs TITAN AG Pty Ltd should be notified immediately. This minibulk/bulk container is reusable and remains the property of TITAN AG Pty Ltd. DO NOT rinse empty container. Empty contents fully into application equipment. Close all valves and return to the point of supply for refill or storage. No other liquid, solid or pesticide product should be put into it. When empty return to TITAN AG Pty Ltd for cleaning, relabelling and refilling.

SAFETY DIRECTIONS

Product is harmful if swallowed. Attacks the eyes. Repeated minor exposure may have a cumulative poisoning effect. Obtain an emergency supply of atropine tablets 0.6 mg. 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, face shield or goggles and contaminated clothing.

FIRST AID

If swallowed, DO NOT induce vomiting. Give a glass of water. If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre. Phone Australia 13 11 26; New Zealand 0800 764 766 or a doctor at once. Remove any contaminated clothing, wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed. If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.

SAFETY DATA SHEET

Additional information is listed in the safety data sheet (SDS). A safety data sheet for TITAN Ethephon 720 Growth Regulator is available from TITAN AG Pty Ltd on request. Call Customer Service on (02) 9999 6655 or visit www.titanag.com.au

CONDITIONS OF SALE: TITAN AG Pty Ltd shall not be liable for any loss injury damage or death whether consequential or otherwise whatsoever or howsoever arising whether through negligence or otherwise in connection with the sale supply use or application of this product. The supply of this product is on the express condition that the purchaser does not rely on TITAN AG's skill or judgment in purchasing or using the same and every person dealing with this product does so at his own risk absolutely. No representative of TITAN AG Pty Ltd has any authority to add to or alter these conditions.

Additional statements required by Globally Harmonised System of Classification and Labelling of Chemicals (GHS) and Safe Work Australia: Harmful in contact with skin or if inhaled. Causes severe skin burns and eye damage. Harmful to aquatic life with long lasting effects. **Precautionary:** Do not breathe dust/fume/gas/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment. Wash hands thoroughly after handling. Use only outdoors or in a well-ventilated area. **IF ON SKIN (or hair):** Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Specific treatment (see on this label). **IF INHALED:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Wash contaminated clothing before reuse. **IF SWALLOWED:** rinse mouth. Do NOT induce vomiting. Take off contaminated clothing and wash it before reuse. Store locked up. Dispose of contents/container in accordance with local/regional/national regulations.

