

Infosafe No™ 3NU9T	Issue Date : July 2017	ISSUED by NUFARMNZ
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 Product Name **HI-CANE®**

## 1. Identification

<b>GHS Product Identifier</b>	HI-CANE®
<b>Product Code</b>	04456
<b>Product Type</b>	Plant Growth Regulator
<b>Company Name</b>	Nufarm NZ
<b>Address</b>	6 Manu Street, Otahuhu Auckland 2024 New Zealand
<b>Telephone/Fax Number</b>	Tel: 0-9-270 4150 Fax: 0-9-270 4159
<b>Emergency phone number</b>	0800 651 911
<b>Email</b>	info@nz.nufarm.com
<b>Recommended use of the chemical and restrictions on use</b>	A plant growth regulator which promotes uniform budbreak and flowering of kiwifruit, and earlier concentrated flowering of apples.
<b>Other Information</b>	This SDS describes, to the best of our knowledge, the properties of the concentrated product. The physical properties and some of the assessments do not apply to the properties of the product once it has been diluted for application. Acute health effects of the diluted product are likely to be much less severe.

## 2. Hazard Identification

<b>Other Information</b>	6.1C acute toxicant, 6.3A skin irritant, 6.4A eye irritant, 6.5B sensitiser, 6.8B reproductive or developmental toxicant, 6.9A target organ toxicant, 9.1D aquatic toxicant, 9.3B terrestrial vertebrate toxicant, 9.4C terrestrial invertebrate toxicant, <b>TOXICITY</b> Toxic - may be fatal if swallowed, inhaled or absorbed through the skin. May cause organ damage from repeated oral exposure at high doses. Harmful - Severely irritates skin and eyes and may cause sensitisation from prolonged skin contact. May cause reproductive/development damage from repeated oral exposure. Do not consume alcohol the day before or up to seven days after application. In combination with alcohol, a severe temporary reaction known as 'cyanamide flush' may be produced. Symptoms of cyanamide flush include skin flushing, dizziness, headache, shortness of breath and a rapid pulse. <b>ECOTOXIC</b> Harmful to aquatic organisms. Toxic to terrestrial vertebrates. Toxic to bees.
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## 3. Composition/information on ingredients

<b>Chemical Characterization</b>	Liquid		
<b>Ingredients</b>	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>
	Hydrogen cyanamide	420-04-2	520 g/L
	Phosphoric acid	7664-38-2	0-<20 g/L
	Ingredients determined to be non-hazardous	-	To volume

## 4. First-aid measures

<b>First Aid Measures</b>	For advice contact the National Poisons Centre 0800 POISON (0800 764 766) or a doctor immediately. Begin artificial respiration if the victim is not breathing. Use mouth-to-nose rather than mouth-to-mouth. Obtain medical attention.
<b>Inhalation</b>	Remove patient to fresh air. Lay down and keep warm and rested. If breathing is shallow or has stopped ensure airway is clear and apply resuscitation. Seek medical assistance immediately.
<b>Ingestion</b>	Never give anything by mouth to an unconscious person. If swallowed do NOT induce vomiting. For advice, contact the National Poisons Centre (0800 764

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<b>Skin</b>	766). Seek medical assistance immediately. Immediately flush body and clothes with large amounts of water. Remove contaminated clothing and footwear. Wash affected areas with soap and water. If a large area is affected seek medical assistance.
<b>Eye contact</b>	Flush eyes with plenty of water for 15 minutes holding eyelids open if necessary. Seek medical assistance. Remove contact lenses, if present and easy to do.
<b>First Aid Facilities</b>	Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.
<b>Advice to Doctor</b>	Symptoms: erythema, nausea, increased pulse frequency, fall in blood pressure, feeling of burning, headache, irritation of skin and mucous membranes. After ingestion of large amounts circulatory depression and unconsciousness are possible. Caution: Alcoholic beverages interact with cyanamide. Symptoms showing flush are possible (difficulty in breathing, bright red face). The symptoms of this interaction disappear rapidly and are generally harmless. Treat symptomatically. No specific antidote known. Ingestion of small amounts:- administer activated charcoal, sodium sulphate and large amounts of water orally. Ingestion of large amounts:- monitor circulatory functions, if necessary irrigate the stomach preventing aspiration and taking into account the irritating properties to mucous membranes. In case of skin irritation, use corticoid containing external preparations.

## 5. Fire-fighting measures

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<b>Suitable extinguishing media</b>	Water fog, foam, carbon dioxide or dry chemical. Dry sand.
<b>Hazards from Combustion Products</b>	Dangerous fumes in the case of fire are ammonia, nitrogen gases, carbon oxides and hydrogen cyanide (hydro cyanic acid).
<b>Special Protective Equipment for fire fighters</b>	Full protective clothing and self-contained breathing apparatus.
<b>Specific Methods</b>	Keep up wind. Do not allow washings to reach sewage or effluent systems.
<b>Specific hazards arising from the chemical</b>	Temperatures above 60°C may cause a spontaneous exothermic reaction. Closed containers may rupture or explode (due to pressure build-up) when exposed to extreme heat. Not combustible under normal conditions.
<b>Hazchem Code</b>	2WE
<b>Other Information</b>	Location Certificate: Not applicable Hazardous Atmosphere Zone: Not applicable Number of Fire Extinguishers: Not applicable

## 6. Accidental release measures

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<b>Spills &amp; Disposal</b>	Wear protective clothing. Clear area of unprotected personnel. Contain liquid spill and absorb with sand, soil or absorbent granules. If spill does enter waterways contact the local authority. Collect in an appropriate sealable container for disposal in an approved landfill.
<b>Personal Protection</b>	For appropriate personal protective equipment (PPE), refer Section 8.
<b>Environmental Precautions</b>	Prevent from entering drains, waterways or sewers.

## 7. Handling and storage

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<b>Precautions for Safe Handling</b>	Avoid skin and eye contact and inhalation of spray mist. APPROVED HANDLER: This product must be under the control of an approved handler or secured unless it is being transported by a person with a current dangerous goods endorsement on their drivers licence. TRACKING: Location and movement of this product must be recorded at each stage of its lifecycle. RECORD KEEPING: Records of use as described in the NZS 8409 Management of Agrichemicals must be kept. BEWARE: Spray drift hazard. Apply this product carefully. Spray drift may cause serious damage to other desirable plants.
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**Conditions for safe storage, including any incompatibilities**

Do not consume alcoholic beverages 24 hours prior to, during and 7 days after handling cyanamide as a severe reaction occurs with Hi-cane and alcohol together.

Keep out of reach of children.

Store in original container, tightly closed and in a locked, dry, dark, cool (15°C or less) area away from sunlight, feed, seeds and foodstuffs. If stored from one season to the next store at 4°C in a cool store. Store in accordance with NZS 8409 Management of Agrichemicals. Store away from acids. Stores containing 1000L of Hi-Cane are subject to signage, 100L require secondary containment and more than 100L require emergency response plans.

**Other Information**

Always read the label and any attached leaflet before use.

Aggregate Storage Volume Thresholds:  
 When stored with substances of the same hazard classification the aggregate quantity must be considered. For full details refer to the current NZS8409 Management of Agrichemicals and the HSNO Regulations.

## 8. Exposure controls/personal protection

**Occupational exposure limit values**

WES TWA for cyanamide = 2 mg/m<sup>3</sup>  
 WES TWA for phosphoric acid = 1mg/m<sup>3</sup> STEL=2mg/m<sup>3</sup>

The following ADE and PDEs for hydrogen cyanamide (active) have been set

- ADE = 0.002 mg/kg bw/day
- PDE (dermal exposure) = 0.0008 mg/kg bw/day
- PDE (inhalation exposure) = 0.0008 mg/kg bw/day
- PDE (food) = 0.0004 mg/kg bw/day.

**Appropriate engineering controls**

No TEL's or EEL's have been assigned to this product.  
 Handle in well ventilated areas, generally natural ventilation is adequate.

**Personal Protective Equipment**

Avoid all contact.  
 Do not use Hi-Cane in a manner that will directly, or through drift, expose workers or other persons. The area being treated must be vacated by unprotected persons.  
 When mixing or applying wear a NIOSH approved respirator with combination filter for vapour/particles, safety goggles, elbow length PVC, nitrile rubber or butyl-rubber gloves, PVC coveralls and boots.  
 Where workers are in contact with kiwifruit vines within 5 days of spraying, rubber gloves must be worn.

**Hygiene Measures**

Do not eat, drink or smoke while using.  
 Remove protective clothing and wash hands and face thoroughly before meals and after work. Wash protective clothing daily after work.

## 9. Physical and chemical properties

<b>Form</b>	Liquid
<b>Appearance</b>	Blue liquid
<b>Odour</b>	Odourless
<b>Melting Point</b>	-15°C
<b>Boiling Point</b>	100°C
<b>Solubility in Water</b>	Completely miscible @ 20°C
<b>Specific Gravity</b>	1.06g/mL @ 20°C
<b>pH</b>	3.9 - 4.9 @ 20°C
<b>Vapour Pressure</b>	0.005 hPa @ 20°C (cyanamide)
<b>Viscosity</b>	Viscosity, dynamic: 1.026 mPa.s @ 20°C
<b>Partition Coefficient: n-octanol/water</b>	log Pow: -0.72
<b>Flammability</b>	Not flammable
<b>Other Information</b>	(SL) Soluble concentrate

## 10. Stability and reactivity

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<b>Chemical Stability</b>	When stored appropriately this product should show no significant degradation for 18 months from the date of manufacture.
<b>Conditions to Avoid</b>	Suitable storage = polypropylene, polyethylene, enamel, austenitic steel. Avoid temperatures above 20°C. Keep away from direct sunlight. Do not concentrate the product by evaporation. May cause violent decomposition.
<b>Incompatible Materials</b>	Acids, bases, combustible substances
<b>Hazardous Decomposition Products</b>	Ammonia
<b>Possibility of hazardous reactions</b>	Violent exothermic reaction with acids, bases and at temperatures above 40°C
<b>Hazardous Polymerization</b>	Hazardous polymerisation may occur above pH5
<b>Other Information</b>	Direct sunlight accelerates breakdown. Do not mix with other pesticides.

## 11. Toxicological Information

<b>Toxicology Information</b>	Symptoms of poisoning include: Erythema (reddening of skin), hypertension, increased pulse rate, nausea, feeling of burning, headache, fall in blood pressure, irritation of skin and mucous membranes. In large doses circulatory depression and unconsciousness are possible.
<b>Acute Toxicity - Oral</b>	Oral LD50 (rat): 284mg/kg for Hi-Cane
<b>Acute Toxicity - Dermal</b>	Dermal LD50 (rabbit): 1,696mg/kg for Hi-Cane
<b>Acute Toxicity - Inhalation</b>	LC50 (rat): >2mg/L/4h (Maximum concentration in the test, no animals died) for Hi-Cane
<b>Ingestion</b>	Harmful if swallowed. May cause transitory intense redness in face, dizziness and respiratory distress.
<b>Inhalation</b>	May be harmful if inhaled. May cause irritation of mucous membranes.
<b>Eye</b>	Severely irritating to eyes. (Hi-Cane)
<b>Skin Sensitisation</b>	Sensitising (guinea pig) for Hi-Cane
<b>Serious eye damage/irritation</b>	Irritating (rabbit)
<b>Mutagenicity</b>	Not mutagenic in AMES test. Did not show mutagenic effects in animal experiments.
<b>Skin corrosion/irritation</b>	Severe primary irritant, corrosive to skin. Produces severe dermatitis on moist skin. Repeated or prolonged exposure may cause sensitisation. (Hi-Cane)
<b>Human Effects</b>	Cyanamide inhibits the enzyme aldehyde dehydrogenase and thus interferes with the oxidation of alcohol, resulting in accumulation of acetaldehyde in the blood, an effect which may account for the unpleasant, but transient symptoms of flush.
<b>Other Information</b>	The concurrent use of alcoholic beverages may enhance toxic effects and may cause a 'cyanamide flush' (difficulty breathing, bright face). This reaction disappears rapidly and is generally harmless.

## 12. Ecological information

<b>Ecological Information</b>	Avoid off target spray drift onto sensitive crops (e.g. lemons). Under aerobic soil conditions Hi-Cane is rapidly degraded to urea (DT50 = 1-6 days). Under anaerobic conditions (eg. Water saturated soils) degradation to urea occurs more slowly via an alternative pathway. Under acid conditions (pH<4) the product hydrolyses to urea, which is easily biodegradable. Behaviour in sewage works: Properly treated effluents containing low concentrations of the product are not expected to inhibit the activated sludge in a sewage plant. Animal experience: Do not allow animals, especially dogs to come into contact with spray mist or tank washings. Non-grazing animals should not be exposed to residues on grass for three days and grazing animals for seven days.
<b>Persistence and degradability</b>	Not readily biodegradable. Cyanamide in water/sediment is moderately degradable. Evidence for inherent

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	biodegradability. Biodegradable in the soil (sediment). Under acid conditions (pH < 4) Hi-Cane hydrolyses to urea, which is easily biodegradable.
<b>Acute Toxicity - Fish</b>	LC50/96hr/rainbow trout = 180mg/L for Hi-Cane NOEC/21d/rainbow trout = 7.4mg/L for Hi-Cane EC50/48hr/Daphnia magna = 6.5mg/L for Hi-Cane
<b>Acute Toxicity - Daphnia</b>	
<b>Acute Toxicity - Algae</b>	EC50/90h/Selenastrum capricornutum = 27.5mg/L for Hi-Cane
<b>Acute Toxicity - Bacteria</b>	EC10/Pseudomonas putida = 314mg/L for Hi-Cane
<b>Acute Toxicity - Other Organisms</b>	Toxic to bees. Spray must not contact plants in flower if they are likely to be visited by bees. LD50 Honeybees ca. 100µg/bee for a similar product

### 13. Disposal considerations

<b>Product Disposal</b>	Dispose of product only by using according to the label, or dilute and pour onto agricultural land as a nitrogen source.
<b>Container Disposal</b>	Triple rinse empty container and add rinsate to spray tank. Recycle empty container. Otherwise crush and bury in a suitable landfill.

### 14. Transport information

<b>Transport Information</b>	It is good practice not to transport agricultural chemical products with food, food related materials and animal feedstuffs.
<b>U.N. Number</b>	2922
<b>UN proper shipping name</b>	CORROSIVE LIQUID, TOXIC, N.O.S. - (hydrogen cyanamide, 52%)
<b>Transport hazard class(es)</b>	8
<b>Sub.Risk</b>	6.1
<b>Hazchem Code</b>	2WE
<b>Packaging Method</b>	-
<b>Packing Group</b>	III
<b>EPG Number</b>	-
<b>IERG Number</b>	37
<b>IMDG EMS</b>	F-A, S-B
<b>Other Information</b>	Do not carry this product on a passenger service vehicle. Segregation: Check the latest Land Transport Rule Dangerous Goods Rule 45001 for additional information. Sea transport may require additional segregation. Refer NZS5433 sea segregation for details.

### 15. Regulatory information

<b>National and or International Regulatory Information</b>	Registered pursuant to the ACVM Act 1997, No. P3566 See <a href="http://www.foodsafety.govt.nz">www.foodsafety.govt.nz</a> for registration conditions Approved pursuant to the HSNO Act 1996, Approval Code HRC000001 See <a href="http://www.epa.govt.nz">www.epa.govt.nz</a> for approval controls.
<b>Packaging &amp; Labelling</b>	TOXIC - keep out of reach of children ECOTOXIC
<b>Hazard Rating Systems</b>	NFPA/HMIS: 3-1-1
<b>Hazard Category</b>	TOXIC * ECOTOXIC - keep out of reach of children
<b>Other Information</b>	Hi-Cane does not attract Health and Safety at Work Major Hazard Facility Regulations. Class 6.1C classification applied only to oral pathway.

### 16. Other Information

<b>Date of preparation or last revision of SDS</b>	July 2017
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# Safety Data Sheet

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**Contact Person/Point** IN AN EMERGENCY, DIAL 111 - FIRE OR POLICE  
24Hr Tollfree Emergency No: 0800 651 911  
24Hr Emergency No: National Poisons Centre Phone: 0800 764 766

**Revisions** Minor update made in Section-15.

**Highlighted**

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