Grosafe Chemicals Limited

SAFETY DATA SHEET

HORTCARE® Hi-Break®

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND COMPANY

1.1 Identifiers

Product name:	**HORTCARE Hi-Break**
Other Name(s):	-

1.2 Recommended use of the chemical and restrictions on use

Product Use:	Plant growth regulator for use on kiwifruit and apples.

1.3 Supplier contact details:

Company name:	Grosafe Chemicals Limited
Address:	20 Jean Batten Drive Mt Maunganui, 3116
Telephone:	0800 220 002
Email:	info@grosafe.co.nz

Emergency telephone number 0800 CHEMCALL (0800 243 622)

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of the Hazardous Chemical

Hazardous substance according to Hazardous Substances and New Organisms (HSNO) Act 1996
Classifications according to the Hazardous Substances (Hazard Classification) Notice 2020.

Classifications: Acute oral toxicity Category 3, Acute dermal toxicity Category 4, Acute inhalation toxicity Category 4, Skin irritation Category 2, Eye irritation Category 2, Skin sensitisation Category 1, Reproductive toxicity Category 2, Specific target organ toxicity (repeated exposure) Category 1, Hazardous to terrestrial vertebrates, Hazardous to terrestrial invertebrates.

2.2 Label elements:

Pictograms:

Signal Word: DANGER

Hazard statements:

H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.

H319	Causes serious eye irritation.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H432	Toxic to terrestrial vertebrates.
H443	Harmful to terrestrial invertebrates.

Precautionary statements:

Prevention	
P102	Keep out of reach of children.
P103	Read label before use.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe mist/vapours/spray.
P264	Wash hands and any exposed skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves, protective clothing and eye/face protection.
P281	Use only personal protective equipment as required.
Response	
P101	If medical advice is needed, have product container or label at hand.
P308 + P313	IF exposed or concerned: Get medical advice.
P314	Get medical advice if you feel unwell.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTRE or doctor.
P330	Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P312	Call a POISON CENTRE or doctor if you feel unwell.
P333 + P313	If skin irritation or rash occurs: Get medical advice.
P362	Take off contaminated clothing and wash before re-use.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a Poison Centre or doctor if you feel unwell.
P305 + P351	If IN EYES: Rinse cautiously with water for several minutes.
+ P338	Remove contact lenses if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice.
Storage	
P405	Store locked up.
Disposal	
P501	Dispose of contents/container in accordance with local regulations.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS	% w/w
Hydrogen cyanamide	420-04-2	50
Phosphoric acid	7664-38-2	<3
Other ingredients	Trade secret	balance

This is a commercial product whose exact ratio of components may vary slightly.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General Information:

If exposed or concerned, get medical advice. For advice call the National Poison Centre, telephone 0800 POISON [0800 764 766]. Have label or Safety Data Sheet at hand

Ingestion: If swallowed, rinse mouth with water. Do not induce vomiting. Immediately call the NATIONAL POISONS CENTRE or doctor for advice.

Skin Contact: Remove contaminated clothing and wash skin with plenty of soap and water. Get medical advice if person feels unwell, or if irritation or rash develops.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice.

Inhalation: Remove person to fresh air and keep at rest in a position comfortable for breathing. Call the NATIONAL POISONS CENTRE or doctor for advice.

4.2 Symptoms caused by exposure

Erythema, nausea, tachycardia, fall in blood pressure, headache, irritation of skin and mucous membranes.

4.3 Medical attention and special treatment

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media

Use water spray, alcohol resistant foam. Contain to prevent runoff into drains, sewers, waterways.

5.2 Specific hazards arising from the chemical

Fire decomposition products may be harmful if inhaled.

5.3 Special protective equipment and precautions for fire fighters

Wear full personal protective equipment including with self-contained breathing apparatus (SCBA).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Contain spillage. Keep unauthorised people away from spillage. Wear full protective clothing including respiratory, eye and face protection. Wash contaminated personal protective equipment and clothing, and dry before re-use.

6.2 Environmental precautions

Prevent spillage from entering drains or waterways. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority.

6.3 Methods and materials for containment and cleaning up

Contain spilled material. Recover large liquid spills into labelled drums that can be sealed for safe disposal. For small spillage, absorb with inert material (e.g.vermiculate, soil), recover into labelled container that can be sealed and sent for disposal to landfill Clean area with water and detergent.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Read the label before use. Do not handle until all safety precautions have been read and understood.

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.

To be used by workers who are trained and appropriately supervised. Restricted to workplaces only. Use in well-ventilated environment. Avoid contact with skin and eyes. Avoid inhalation of spray mist/aerosols. Wear protective equipment such as coat/trouser (overalls), boots, waterproof hat, respirator, gloves and eye protection. Wash hands and exposed skin after handling. Do not use spray equipment contaminated with this product for any other purpose unless first thoroughly cleaned with a suitable cleaning detergent.

7.2 Conditions for safe storage

Store locked up in the closed original packaging out of reach of children and in a dry, cool, well-ventilated area. Keep away from food, drink and animals feedstuffs. It is recommended that unused product stored from one season to the next, be stored at 4^0C.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters – exposure standards, biological monitoring

Workplace Exposure Standards (WES) have not been set for this product (Workplace Exposure Standard and Biological Exposure Indices, edition 12, November 2020).

Ingredient	TWA (mg/m^3)	STEL (mg/m^3)
Cyanamide	2*	
Phosphoric acid	1	

* dermal sensitiser

HSNO Exposure Controls

ADE	0.002 mg/kg/day
PDE (dermal)	0.0008 mg/kg/day
PDE (inhalation)	0.0008 mg/kg/day
PDE (food)	0.0004 mg/kg/day
TEL	Not set

8.2 Engineering controls

Use outdoors to ensure adequate ventilation.

8.3 Personal protective equipment (PPE)

The following Standards provide general advice regarding safety clothing and equipment: Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: **AS/NZS 4501**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

Eye/Face Protection: Wear chemical goggles or face shield when mixing or applying product.

Skin Protection: Wear impervious gloves (e.g. nitrile, butyl), coat, trousers, waterproof hat. Ensure all skin areas are covered.

Workers in contact with kiwifruit vines within 5 days after spraying, must wear rubber gloves.

Respirator: Where product is being sprayed and a mist could be produced a respirator should be worn. It should be fitted with a type G cartridge, suitable for agricultural chemicals.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear blue liquid
Odour	Odourless
Odour threshold	Not known
pH	~4 - 5
Melting/Freezing Point	No data available

Boiling Point /Range	~100 ^{0}C
Flash point	Non flammable
Flammability (solid, gas)	Not applicable
Vapour Pressure	0.003 hPa @ 20 ^{0}C (cyanamide)
Vapour density	No data available
Specific gravity	-1.07 g/ml
Solubility	Completely soluble in water
Partition Co-efficient n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

This product is unlikely to react or decompose under normal storage conditions.

10.2 Chemical stability

Stable under normal temperatures and pressure for storage and use. It is recommended that unused product stored from one season to the next, be stored at 4^{0}C.

10.3 Conditions to Avoid

Avoid storage in direct sunlight and storage at temperatures >20^{0}C.

10.4 Incompatible materials and possible hazardous reactions

Contact with oxidising materials, strong acids, alkalis. Reacts with acids to form explosive gas.

10.5 Hazardous decomposition products

Fire Decomposition: Possible harmful unspecified compounds

Polymerisation: May occur at high pH (alkaline conditions).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Health hazard information

The product is classified for health hazards according to an assessment of information on product.

11.2 Toxicological information

Acute toxicity:	Toxic if swallowed, and harmful by dermal or inhalation exposure. Ingestion may cause headache, nausea, fall in blood pressure, circulatory depression, tachycardia and unconsciousness.
Aspiration hazard:	Product contains no components with aspiration hazard.
Respiratory irritation:	May irritate mucous membranes.
Skin corrosion/irritation	Causes skin irritation. Symptoms include face reddening, dermatitis.
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitisation	Contact skin sensitizer. May result in severe dermatitis.
Germ cell mutagenicity:	No ingredients in product classified as presumed or suspected mutagens.
Carcinogenicity	No ingredients in product classified as presumed or suspected carcinogens.
Reproductive toxicity	Suspected of damaging fertility or the unborn child.
Specific target organ toxicity – single/repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Narcotic effects	Product contains no ingredient identified as causing narcotic effects.

11.3 Toxicological data:

Phosphoric acid	Oral, rat, LD_{50} 1530mg/kg b.w Dermal, rabbit , LD_{50} 2740 mg/kg b.w.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Ecotoxicity

This product is harmful to aquatic life and classified as being hazardous (toxic) to terrestrial vertebrates and hazardous (harmful) to terrestrial invertebrates.

Hydrogen cyanamide	Trout, LC_{50} (96hr) 180 mg/L Bluegill sunfish, LC_{50} (96hr) 88 mg/L *Daphnia* sp. EC_{50} (48hr) 6.5 mg/L *Selanestrum* sp. EC_{50} (72 hr) 27.5 mg/L *Pseudokirchneriella* EC_{50} (72 hr) 13.2 mg/L

12.2 Environmental Fate

Persistence and biodegradability: Hydrogen cyanamide rapidly degrades to urea (DT_{50} 1 - 6 days under aerobic conditions).

Aqueous hydrolysis is affected by both PH and temperature (PPDB).

DT_{50} 1200 days at pH 5 and 22^0C
DT_{50} 2.5 days at pH 5 and 80^0C
DT_{50} 810 days at pH 9 and 22^0C
DT_{50} 7.2 hours at pH 9 and 22^0C

Potential to Bioaccumulate: Bioaccumulation not expected to occur. Bioconcentration is low based on LogP of <3.

Mobility in soil: Product is readily soluble in water, but leachability expected to be low.

Other adverse effects: No information available for product.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Product Disposal

If possible, dispose of by using according to the label. May be diluted with water and dispersed over agricultural land as a nitrogen fertiliser. Otherwise, dispose of in an approved landfill or bury below 500mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots.

13.2 Container Disposal

Do not use packaging for storage of other products. Triple rinse container and add residue to mixture. Empty containers should be taken to an Agrecovery collection site for recycling by the Agrecovery Rural Recycling Programme.

SECTION 14: TRANSPORT INFORMAITON

Road and Rail Transport:

Classified as Dangerous Good Class 6.1 according to NZS5433 Transport of Dangerous Goods on Land 2020.

Marine Transport (IMO/IMDG):

Classified as Dangerous Good Class 6.1 by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

Air Transport (ICAO/IATA):

Classified as Dangerous Good Class 6.1 by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulation for transport by air.

UN Number: 3287

UN Proper Shipping Name:	TOXIC LIQUID, INORGANIC (HYDROGEN CYANAMIDE 50%)
Transport hazard class(es)	6.1
Packing Group:	III
HAZCHEM:	2X
Special Precautions for User:	-
IMDG Marine pollutant:	No
Transport in Bulk:	-

SECTION 15: REGULATORY INFORMATION

15.1 HSNO Act 1996

Hazardous substance according to Hazardous Substances (Hazard Classification) Notice 2020.

Approved substance number: HSC000001
Soluble concentrate containing 520 to 540 g/L hydrogen cyanamid**e**

Hazardous classifications: Acute oral toxicity Category 3, Acute dermal toxicity Category 4, Acute inhalation toxicity Category 4, Skin irritation Category 2, Eye irritation Category 2, Skin sensitisation Category 1, Reproductive toxicity Category 2, Specific target organ toxicity (repeated exposure) Category 1, Hazardous to terrestrial vertebrates, Hazardous to terrestrial invertebrates.

Controls: Refer to HS Notices (www.epa.govt.nz) and HSW HS Regulations (www.worksafe.govt.nz)

Certified Handler required:	No
Amount that must be secured if unattended:	Any quantity
Location certificate:	1000L
Fire extinguishers:	-
Signage:	1000 L
Emergency response plan:	100 L
Secondary containment:	100 L
Tracking:	No
Restricted to workplaces only:	Yes
Records of use as agrochemical:	No
Trained qualified handler:	No

Additional Controls (Label) 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.

15.2 ACVM Act 1997

Registration number: P7018.
Refer to www.foodsafety.govt.nz for registration conditions.

SECTION 16: OTHER INFORMATION

16.1 Date of preparation or last revision of SDS

SDS issued	9th August 2021
SDS supersedes	May 2020
Reason issued	Review of product information and SDS format, update classifications to NZ GHS descriptions, transport information.

16.2 ABREVIATIONS

ADE	Acceptable Daily Exposure
ADI	Acceptable Daily Intakes
CAS number	Chemical Abstracts Service Registry Number
CCID	Chemical Classification Identification Database
EPA	Environmental Protection Authority
ErC_{50}	Half maximal Effective Concentration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
Hazchem Code	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
HSNO	Hazardous Substances and New Organisms
HS	Health and Safety
HSR	Hazardous Substances Register
IARC	International Agency for Research on Cancer
LC_{50}	Median Lethal Concentration
LD_{50}	Median Lethal Dose
SDS	Safety Data Sheets
NOAEL	No Observable Adverse Effect Level
NOEL	No Observable Effect Level
NOS	Not otherwise specified
PDE	Potential Daily Exposure
STEL	Short Term Exposure Limit
SWA	Safety Work Australia
TEL	Tolerable Exposure Level
TWA	Time-Weighted Average
UN Number	United Nations Number

16.3 REFERENCES

EPA CCID and Approved Substance databases

PPDB Pesticide Properties DataBase https:/sitem.herts.ac.uk

16.4 OTHER

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End of Safety Data Sheet