SAFETY DATA SHEET

QuadBeet™

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND COMPANY

1.1 Identifiers

Product name:	**QuadBeet™**
Other Name(s):	Suspo-emulsion containing phenmedipham 60g/L, desmedipham 60g/L, ethofumisate 60g/L & metamitron 200g/L

1.2 Recommended use of the chemical and restrictions on use

Product Use:	Herbicide for use in fodder beet, red beet and sugar beet

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
HSNO Substance Approval: HSR101145
Hazard Classifications: Acute inhalation toxicity Category 4; Eye irritation Category 2; Skin sensitisation Category 1; Carcinogenicity Category 2; Specific target organ toxicity – repeated exposure Category 2; Hazardous to the aquatic environment acute Category 1; Hazardous to the aquatic environment chronic Category 1; Hazardous to soil organisms; Hazardous to terrestrial vertebrates.

2.2 Label elements:

Pictograms:

Signal Word: **WARNING**

Hazard statements:

H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Hazardous to soil organisms
Harmful to terrestrial vertebrates

Additional labelling statements required under Hazardous Substances (Labelling Notice 2017
Take all reasonable steps to ensure that the substance does not cause any significant adverse effects to the environment beyond the application area.
Do not apply directly into or onto water.

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/spray/vapours.
P264	Wash hands and 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.
P280	Wear eye/ face protection, protective clothing and protective gloves.
Response	
P101	If medical advice is needed, have product container or label at hand.
P314	Get medical advice if you feel unwell.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTRE or doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P308 + P313	If exposed or concerned: Get medical advice/attention.
P391	Collect spillage.
Storage	
P405	Store locked up.
Disposal	
P501	Dispose of contents/container in accordance with local regulations.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS	Proportion % w/w
Metamitron	41394-05-2	18.3
Phenmedipham	13684-63-4	5.5
Desmedipham	13684-56-5	5.5
Ethofumisate	26225-79-6	5.5
Solvent naphtha (petroleum) heavy aromatic*	64742-95-5	1 – 5
Other ingredients*	Trade secret	balance

This is a commercial product whose exact ratio of components may vary slightly.
*Contains 1-methylnaphthalene (CAS No 90-12-0), 2-methylnaphthalene (CAS No 91-57-6) and naphthalene (CAS No 91-20-3)
**Do not affect the hazardous classifications of the product.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General Information:

For advice, or if you feel unwell or are exposed or concerned, call the National Poisons Centre, telephone 0800 POISON [0800 764 766] or a doctor. Have product label or container at hand.

IF SWALLOWED: Rinse mouth. Call the a POISON CENTRE or doctor for advice if person feels unwell.

IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice if irritation persists.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call the a POISON CENTRE or doctor for advice if person feels unwell.

4.2 Symptoms caused by exposure

Unlikely to cause harmful effects under normal conditions of handling and use.

4.3 Medical attention and special treatment

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media

Use water spray or fog or foam as appropriate for surrounding materials. Contain extinguishing media to prevent runoff into drains, sewers, waterways.

5.2 Specific hazards arising from the chemical

Fire decomposition products may be toxic/harmful and/or irritating if inhaled.

Evacuate people to safe area upwind of fire.

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

Have this SDS available. In the event of a spill, wear appropriate protective clothing, eye/face and skin 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. For small liquid spills, use inert absorbent material, such as sand or vermiculite, and recover into labelled drums that can be sealed for safe disposal. For large liquid spills, recover liquid into labelled containers then absorb remaining liquid and transfer to drums for disposal. Clean area with water and detergent.

If spillage of this product is near trees or valuable plants, remove the top 50mm of soil after the spillage is cleaned up. For further information contact the supplier for advice.

Dispose of contaminated materials to approved landfill in accordance with local regulations.

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. To be used by people who are suitably qualified and appropriately supervised.

Do not apply directly into or onto water.

Take all reasonable steps to ensure that the substance does not cause any significant adverse effects to the environment beyond the application area.

Use only outdoors or in a well ventilated area.

Avoid contact with skin and eyes. Avoid inhalation of spray mist/aerosols. Wear protective equipment such as coat/trouser (overalls), boots, gloves and eye protection. Do not eat, drink or smoke when using this product. Wash hands and exposed skin with soap and water after handling and before rest or meal breaks. Wash contaminated work clothing before reuse.

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 and out of direct sunlight. Keep away from food, drink and animal feedstuffs. Storage of 100 L or more of this product requires an emergency response plan, secondary containment and signage.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters – exposure standards, biological monitoring

Ingredient	TWA (mg/m^3)	STEL (mg/m^3)
Acetone	1185 (500 ppm)	2375 (1000 ppm)
Propylene glycol	474 (150 ppm)	

No biological limits applicable.

8.2 Engineering controls

Use outdoors or in a well-ventilated area.

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 splash goggles if eye contact is possible.

Skin Protection: Wear impervious chemical resistant gloves (e.g. nitrile, butyl), coveralls, socks and chemical resistant footwear. For overhead spray exposure, wear chemical resistant headgear. Ensure all skin areas are covered.

Respirator: Use outdoors in well-ventilated area or use local exhaust ventilation. Where product is being sprayed and a mist could be produced a respirator should be worn. It should be fitted with a cartridge, suitable for particulates.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White/cream liquid suspension
Odour	Aromatic
Odour threshold	Not known
pH	4.0 – 7.0 (as 1% aqueous)
Melting/Freezing Point	No data available
Boiling Point /Range	<100 ^{0}C
Flash point	Non flammable
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	No data available
Vapour Pressure	No data available
Vapour density	No data available
Specific gravity	ca 1.09
Solubility	Forms emulsion 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
Particle characteristics	No data available

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.

10.3 Conditions to Avoid

Contact with oxidising agents.

10.4 Incompatible materials and possible hazardous reactions

Incompatible with explosives, oxidising agents, organic peroxides. Hazardous decomposition products formed at high temperatures.

10.5 Hazardous decomposition products

Fire Decomposition: Carbon dioxide, carbon monoxide, smoke and other unspecified compounds.

10.6 Polymerisation

Not known to occur.

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:	Classified as harmful if inhaled.
Aspiration hazard:	Product is not classified with aspiration hazard.
Respiratory irritation:	Not classified.
Skin corrosion/irritation	Not classified.
Serious eye damage/irritation	Classified as an eye irritant.
Respiratory or skin sensitisation	Desmedipham is classified as skin sensitiser.
Germ cell mutagenicity:	No ingredients in product identified as presumed or suspected mutagens.
Carcinogenicity	Classified as suspected of causing cancer. Excipient ingredient in the formulated product contains naphthalene. Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anaemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain.
Reproductive toxicity	No ingredients in product identified as suspected of damaging fertility or the unborn child.
Specific target organ toxicity – single/repeated exposure	May cause damage to organs through prolonged or repeated exposure at high doses. May affect liver, kidneys, spleen or blood.
Narcotic effects	Product contains no ingredient identified as causing narcotic effects.

11.3 Toxicological data:

Product	Not available
Metamitron	Oral, dog and mouse LD_{50} 650 mg/kg b.w Dermal, rat LD_{50} 1000 mg/kg b.w. Inhalation, mouse and hamster LC_{50} (4 hr) 0.206 mg/L
Phenmedipham	Oral, dog and guinea pig LD_{50} 4000 mg/kg b.w Dermal, rabbit LD_{50} 1000 mg/kg b.w.
Desmedipham	Oral, rat LD_{50} >2000 mg/kg b.w Dermal, rat LD_{50} >2000 mg/kg b.w. Inhalation, rat LC_{50} (4 hr) >7.4 mg/L
Ethofumisate	Oral, rat LD_{50} >2000 mg/kg b.w Dermal, rat LD_{50} >2000 mg/kg b.w. Inhalation, rat LC_{50} (4 hr) > 0.16 mg/L

SECTION 12: ECOLOGICAL INFORMATION

12.1 Ecotoxicity

This product is classified as being very toxic to aquatic life with long lasting effects, hazardous to soil organisms, and hazardous to terrestrial vertebrates

12.2 Environmental Fate

Breakdown in soil and groundwater: Not rapidly biodegradable.

Metamitron	DT_{50} > 30 days
Phenmedipham	DT_{50} > 25 days
Desmedipham	DT_{50} ~ 34 days, DT_{90} <115 days
Ethofumisate	DT_{50} 10 – 122 days (laboratory); 84 -407 days (field)

Bioaccumulation: Not expected to bioaccumulative.

Metamitron	BCF = 75
Phenmedipham	BCF = 165
Desmedipham	BCF = 334
Ethofumisate	BCF = 144

Partition coefficient (octanol/water): Not available.

Soil mobility: Low

12.3 Ecotoxicity data:

Metamitron	Fish; *Oncorhynchus mykiss* LC_{50} (96 hr) >190 mg/L Crustacea; *Daphnia magna* EC_{50} (48 hr) 5.7 mg/L Algae; *Scenedemus subspicatus* EC_{50} (72 hr) growth 0.22 mg/L *Pseudokirchneriella subcapitata* EC_{50} (72 hr) 0.4 mg/L Bird; Japanese quail LC_{50} 1875 -1930 mg/kg
Phenmedipham	Fish; *Oncorhynchus mykiss* LC_{50} (96 hr) 1.71 mg/L Crustacea; *Daphnia magna* EC_{50} (48 hr) 0.41 mg/L Algae: *Selenastrum capricornutum* EC_{50} (72 hr) 0.192 mg/L Bird: chicken LD50 >2500 mg/kg; mallard duch LD50 >2100 mg/kg
Desmedipham	Fish; *Oncorhynchus mykiss* LC_{50} (96 hr) 1.41 mg/L Crustacea; *Daphnia magna* EC_{50} (48 hr) 0.35 mg/L Algae: *Raphidocelis subcapitata* EC_{50} (72 hr) growth 0.01 mg/L Aquatic plant: *Lemna minor* EC_{50} (7 d) biomass >5.2 mg/L
Ethofumisate	Fish; *Cyprinus carpio* LC_{50} (96 hr) 11.0 mg/L Crustacea; *Daphnia magna* EC_{50} (48 hr) 13.52 – 22.0 mg/L Bird: Mallard duck LD50 >3552 mg/kg; Bobwhite quail LD50 >8743 mg/kg

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Product Disposal

Refer to product label. If possible, dispose of by using according to the label. Otherwise dispose of to Agrecovery® chemical recovery service or at an approved landfill in accordance with local regulations.

13.2 Container Disposal

Refer to product label. Do not use packaging for storage of any other products. Triple rinse empty container and add rinsate to spray tank. Submit container to Agrecovery® for recycling, or crushand send to approved landfill.

SECTION 14: TRANSPORT INFORMAITON

Road and Rail Transport:

Classified as Dangerous Good Class 9 according to NZS5433 Transport of Dangerous Goods on Land

Marine Transport (IMO/IMDG):

Classified as Dangerous Good Class 9 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 9 by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulation for transport by air.

UN Number:	3082
UN Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS METAMITRON 20%, PHENMEDIPHAM 6%, DESMEDIPHAM 6%, ETHOFUMISATE 6%)
Transport hazard class(es)	9
Packing Group:	III
HAZCHEM:	3Z
Special Precautions for User:	-
IMDG Marine pollutant:	YES
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:	HSR101145
Hazard classifications:	Acute inhalation toxicity Category 4; Eye irritation Category 2; Skin sensitisation Category 1; Carcinogenicity Category 2; Specific target organ toxicity – repeated exposure Category 2; Hazardous to the aquatic environment acute Category 1; Hazardous to the aquatic environment chronic Category 1; Hazardous to soil organisms; Hazardous to terrestrial vertebrates.
Controls:	Refer to control on www.epa.govt.nz for complete wording for variation Controls. This substance must be applied using ground-based methods only. The following limits are set for toxicologically relevant impurities in the active ingredient ethofumesate used to manufacture this substance: Ethyl methane sulfonate: 0.1 mg/kg maximum Isobutyl methane sulfonate: 0.1 mg/kg maximum
Additional information:	Refer to HS Notices (www.epa.govt.nz) and HSW HS Regulations (www.worksafe.govt.nz)
Certified handler:	Not applicable
Tracking:	Not applicable
Qualifications:	A person mixing, loading or applying this product must be suitably qualified or under the supervision of a suitably qualified person. Refer to Schedule 10 of the Hazardous Substances (Hazardous Property Controls) Notice 2017 for details.
International Agreements:	Not applicable
Signage trigger quantity (Schedule 3):	100 L
Emergency Response Plan trigger quantity (Schedule 5):	100 L

Secondary Containment trigger quantity (Schedule 16):	100 L
Record Keeping:	If 3 kg or more of the substance is applied within 24 hours, in a place where the substance is likely to enter air or water and leave the application area, a PCBU with management or control of the substance must ensure that a written record is kept of each application of the substance. Refer to section 48 of the Hazardous Substances (Hazardous Property Controls) Notice 2017 (Hazardous Property Controls) Notice 2017
Environmental exposure limits:	None set
Tolerable exposure limits:	None set

15.2 ACVM Act 1997

Registration number: P9423 QuadBeet™

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	24th September 2023
SDS supersedes	25th June 2020
Reason issued	Update to GHS

16.2 ABREVIATIONS

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
STEL	Short Term Exposure Limit
SWA	Safety Work Australia
TWA	Time-Weighted Average
UN Number	United Nations Number

16.3 REFERENCES

EPA CCID and Approved Substance databases

PPDB- Pesticides Properties DataBase

16.4 OTHER

QuadBeet ™ is a trademark of Grosafe Chemicals Ltd

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End of Safety Data Sheet