Version	Revision Date:	SDS Number:	Date of last issue: 22.03.2022
5.0	28.06.2022	203000015339	Country / Language: NZ / 6N (EN)

Section 1: Identification

Product name : VIRKON S

Product code : 000000000057747484

Manufacturer or supplier's details

Company : NRM
535 Wairakei Road,
Burnside,Christchurch, 8140 NZ,
0800800380

Emergency telephone number : NZ Poisons Information Centre
Ph: 0800 764766
24-hour Medical Emergency: 0800 111174
Transport Emergency: 0800 658080

The information in this SDS is provided in good faith, but no warranty, expressed or implied is made. Contact NRM for more information.

Recommended use of the chemical and restrictions on use

Recommended use : Disinfectants

Section 2: Hazard identification

GHS Classification

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 1

Specific target organ toxicity - single exposure (Oral) : Category 2

Long-term (chronic) aquatic hazard : Category 3

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H318 Causes serious eye damage.
H371 May cause damage to organs if swallowed.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P260 Do not breathe dust.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 + P310 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.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

None known.

Section 3: Composition/information on ingredients

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
pentapotassium bis(peroxymonosulphate) bis(sulphate)	70693-62-8	>= 30 -< 50
Polyphosphoric acids, sodium salts	68915-31-1	>= 20 -< 30
Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts	68411-30-3	>= 10 -< 20
malic acid	6915-15-7	>= 1 -< 10
sulphamidic acid	5329-14-6	>= 3 -< 5

potassium hydrogensulphate	7646-93-7	>= 1 -< 3
sodium toluenesulphonate	12068-03-0	>= 1 -< 10
sodium chloride	7647-14-5	>= 1 -< 10
dipotassium peroxodisulphate	7727-21-1	>= 0.1 -< 1
dipentene	138-86-3	>= 0.1 -< 0.25

Section 4: First-aid measures

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed

Risks : Causes skin irritation.
Causes serious eye damage.
May cause damage to organs if swallowed.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

Notes to physician : Treat symptomatically.

Section 5: Fire-fighting measures

Suitable extinguishing media	:	In case of fire, use water spray (fog), foam or dry chemical.
Unsuitable extinguishing media	:	Carbon dioxide (CO2) High volume water jet
Specific hazards during fire-fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Sulphur oxides Metal oxides Carbon dioxide (CO2) Carbon monoxide Nitrogen oxides (NOx) Halogenated compounds
Specific extinguishing methods	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Avoid dust formation. Avoid breathing dust.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Neutralize with chalk, alkali solution or ammonia. Keep in suitable, closed containers for disposal.

Section 7: Handling and storage

Advice on protection against fire and explosion	:	Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
Advice on safe handling	:	Protect from moisture. Avoid formation of respirable particles. Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the ap-

plication area.
Dispose of rinse water in accordance with local and national regulations.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

Conditions for safe storage : Protect from moisture.
Keep away from:
Combustible substances
Strong bases

Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Keep away from alkalis.

Recommended storage temperature : < 50 °C

Further information on storage stability : Keep in a dry place.

Stable under recommended storage conditions.

Section 8: Exposure controls/personal protection

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
dipotassium peroxodisulphate	7727-21-1	TWA	0.1 mg/m3 (Persulphate)	ACGIH

Engineering measures : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Filter type : Recommended Filter type:

ABEK-P2-filter

Hand protection		
Material	:	Butyl rubber - IIR
Wearing time	:	< 60 min
Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations
Eye protection	:	Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Wear suitable protective clothing. Dust impervious protective suit Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Section 9: Physical and chemical properties

Appearance	:	powder
Physical state	:	solid
Colour	:	pink
Odour	:	pleasant, sweet
Odour Threshold	:	No data available not determined
pH	:	2.35 - 2.65 Concentration: 1 %
Melting point/range	:	No data available Biocides Authorization not required
Boiling point/boiling range	:	No data available Biocides Authorization not required
Flash point	:	Not applicable Solid
Evaporation rate	:	No data available Biocides Authorization not required
Flammability (solid, gas)	:	The product is not flammable.
Self-ignition	:	No data available
Burning number	:	Not applicable

Upper explosion limit / Upper flammability limit	:	Not applicable Solid
Lower explosion limit / Lower flammability limit	:	Not applicable Solid
Vapour pressure	:	No data available Biocides Authorization not required
Relative vapour density	:	Not applicable Solid
Relative density	:	1.07
Density	:	1.07 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	65 g/l
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable Preparation
Ignition temperature	:	Not applicable Solid
Decomposition temperature	:	> 50 °C
Viscosity		
Viscosity, dynamic	:	Not applicable Solid
Viscosity, kinematic	:	Not applicable Solid
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing. Method: Regulation (EC) No. 440/2008, Annex, A.17

Section 10: Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur. Dust may form explosive mixture in air.
Conditions to avoid	:	Exposure to moisture
Incompatible materials	:	Incompatible with acids.

		Combustible material Oxidizing agents Strong bases brass Cyanides Copper Halogenated compounds Metal salt.
Hazardous decomposition products	:	Oxygen Chlorine Sulphur oxides Hypochlorites

Section 11: Toxicological information

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity	:	LD50 (Rat, male and female): 4,123 mg/kg Method: OECD Test Guideline 401 GLP: yes
Acute inhalation toxicity	:	LC50 (Rat): 3.7 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhalation toxicity Remarks: the particle size measurements of the product indicate that it is not respirable and therefore not bioavailable by the inhalation route.
Acute dermal toxicity	:	LD50 (Rat): > 5,000 mg/kg Remarks: Extrapolation according to Regulation (EC) No. 440/2008

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Acute oral toxicity	:	LD50 (Rat, male and female): 500 mg/kg Method: OECD Test Guideline 423
Acute inhalation toxicity	:	LC0 (Rat, male): > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhalation toxicity

Remarks: Highest producible concentration.

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Extrapolation according to Regulation (EC) No. 440/2008

Polyphosphoric acids, sodium salts:

Acute oral toxicity : LD50 (Rat): 6,600 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 7,940 mg/kg

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Acute oral toxicity : LD50 (Rat, male and female): 1,080 mg/kg
Method: OECD Test Guideline 401
GLP: no

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Dosage caused no mortality

malic acid:

Acute oral toxicity : LD50 (Rat, male and female): 3,500 mg/kg
Method: OECD Test Guideline 401
GLP: no

Acute inhalation toxicity : LC0 (Rat, male and female): > 1.306 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: Highest producible concentration.

Acute dermal toxicity : LD50 (Rabbit, female): > 5,000 mg/kg
Method: OECD Test Guideline 401
GLP: no

sulphamidic acid:

Acute oral toxicity : LD50 (Rat, female): 2,140 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity

potassium hydrogensulphate:

Acute oral toxicity : LD50 (Rat): 2,340 mg/kg

sodium toluenesulphonate:

Acute oral toxicity : LD50 (Rat): 6,500 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

sodium chloride:

Acute oral toxicity : LD50 (Rat, male): 3,550 mg/kg
Symptoms: muscle weakness

Acute inhalation toxicity : No observed adverse effect concentration (Rat, male): > 42 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 10,000 mg/kg

dipotassium peroxodisulphate:

Acute oral toxicity : LD50 (Rat): 700 mg/kg

Acute inhalation toxicity : LC0 (Rat): > 2.95 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: Highest producible concentration.

Acute dermal toxicity : LD50 (Rabbit): > 10,000 mg/kg

dipentene:

Acute oral toxicity : LD50 (Rat): 5,300 mg/kg

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Product:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Irritating to skin.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Species : Rabbit

Method : OECD Test Guideline 404
Result : Causes burns.

Polyphosphoric acids, sodium salts:

Species : Rabbit
Assessment : No skin irritation

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Irritating to skin.
GLP : no

malic acid:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

sulphamidic acid:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Irritating to skin.

potassium hydrogensulphate:

Assessment : Causes burns.

sodium toluenesulphonate:

Species : Rabbit
Result : Irritating to skin.

sodium chloride:

Species : Rabbit
Result : No skin irritation

dipotassium peroxodisulphate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Irritating to skin.

dipentene:

Assessment : Irritating to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Species	:	Rabbit
Result	:	Risk of serious damage to eyes.
Method	:	OECD Test Guideline 405

Polyphosphoric acids, sodium salts:

Species	:	Rabbit
Remarks	:	Moderate eye irritation Based on available data, the classification criteria are not met.

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	OECD Test Guideline 405
GLP	:	yes

malic acid:

Species	:	Rabbit
Result	:	Irritating to eyes.
Method	:	OECD Test Guideline 405

sulphamidic acid:

Species	:	Rabbit
Result	:	Irritating to eyes.
Method	:	OECD Test Guideline 405

sodium toluenesulphonate:

Species	:	Rabbit
Result	:	Irritating to eyes.

sodium chloride:

Species	:	Rabbit
Result	:	No eye irritation

dipotassium peroxodisulphate:

Result	:	Irritating to eyes.

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Product:

Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
	:	Inhalation
	:	Mammal - species unspecified
	:	Expert judgement
	:	Does not cause respiratory sensitisation.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.

Polyphosphoric acids, sodium salts:

Remarks	:	No known sensitising effect.

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

malic acid:

Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

sulphamidic acid:

Result	:	Did not cause sensitisation on laboratory animals.

sodium toluenesulphonate:

Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.

sodium chloride:

Exposure routes	:	Skin contact
Species	:	Guinea pig
Result	:	Did not cause sensitisation on laboratory animals.

dipotassium peroxodisulphate:

Exposure routes	:	Inhalation
Species	:	Mammal - species unspecified
Result	:	May cause sensitisation by inhalation.
	:	Skin contact
	:	Mouse
Method	:	OECD Test Guideline 429
	:	May cause sensitisation by skin contact.

dipentene:

Test Type	:	Maximisation Test
Exposure routes	:	Dermal
Species	:	Guinea pig
Result	:	May cause sensitisation by skin contact.
	:	Mouse
	:	Causes sensitisation.

Chronic toxicity

Germ cell mutagenicity

Not classified based on available information.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Genotoxicity in vitro : Test system: Mammalian-Animal
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive
GLP: yes

Test system: Bacteria
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test system: Mammalian-Human
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes

Genotoxicity in vivo : Species: Mammalian-Animal
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: Cytogenetic assay
Species: Mouse (male)
Cell type: Bone marrow
Application Route: Oral
Result: negative
GLP: no

Test Type: dominant lethal test
Species: Mouse (male)
Application Route: Oral
Result: negative
GLP: no

malic acid:

Genotoxicity in vitro : Remarks: Not mutagenic in a standard battery of genetic toxicological tests.

sulphamidic acid:

Genotoxicity in vitro : Test system: Mammalian-Human
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative
GLP: yes

Test system: Mammalian-Animal
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test system: Bacteria
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

sodium toluenesulphonate:

Genotoxicity in vitro : Remarks: No mutagenic effect.

dipotassium peroxodisulphate:

Genotoxicity in vitro : Remarks: Not mutagenic in a standard battery of genetic toxicological tests.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Effects on foetal development : Remarks: No teratogenic or foetotoxic effects were found at all dose levels tested.

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Effects on fertility : Test Type: Three-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0 - 14 - 70 milligram per kilogram
General Toxicity - Parent: NOAEL: 350 mg/kg body weight
General Toxicity F1: NOAEL: 350 mg/kg body weight
General Toxicity F2: NOAEL: 350 mg/kg body weight
Fertility: NOAEL: 350 mg/kg body weight
Result: Animal testing did not show any effects on fertility.
GLP: no
Remarks: Test results on an analogous product

Effects on foetal development	:	Species: Rat, female Application Route: Oral General Toxicity Maternal: NOAEL: 300 mg/kg body weight Teratogenicity: NOAEL: 300 mg/kg body weight Result: No teratogenic effects GLP: no Remarks: Test results on an analogous product

malic acid:

Effects on foetal development	:	Remarks: No known significant effects or critical hazards.

STOT - single exposure

May cause damage to organs if swallowed.

Components:

potassium hydrogensulphate:

Assessment	:	May cause respiratory irritation.

dipotassium peroxodisulphate:

Assessment	:	May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Species	:	Rat, male and female
LOAEL	:	> 1,000 mg/kg
Application Route	:	Oral
Exposure time	:	28 d
Number of exposures	:	7 days/week
Method	:	OECD Test Guideline 407
Remarks	:	Subacute toxicity

Species	:	Rat, male and female
LOAEL	:	600 mg/kg
Application Route	:	Oral
Exposure time	:	90 d
Number of exposures	:	7 days/week
Method	:	OECD Test Guideline 408
Remarks	:	Subchronic toxicity

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Species	:	Rat, male and female
NOAEL	:	85 mg/kg
LOAEL	:	145 mg/kg
Application Route	:	Oral
Exposure time	:	36 w
Number of exposures	:	daily
GLP	:	no
Remarks	:	Subchronic toxicity

malic acid:

Remarks	:	No known significant effects or critical hazards.

sodium toluenesulphonate:

Species	:	Rat
NOAEL	:	114 mg/kg
Application Route	:	Oral
Exposure time	:	91 d
Method	:	OECD Test Guideline 408
Remarks	:	Subchronic toxicity

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks	:	No data available

Section 12: Ecological information

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Salmo salar (Atlantic salmon)): 24.6 mg/l Exposure time: 96 h Method: Regulation (EC) No. 440/2008, Annex, C.1 Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 6.5 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Fresh water
Toxicity to algae/aquatic plants	:	NOEC (Desmodesmus subspicatus (green algae)): 6.25 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Fresh water

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 53 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
GLP: yes
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.5 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
GLP: yes
Remarks: Fresh water

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (microalgae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes
Remarks: Fresh water

NOEC (Pseudokirchneriella subcapitata (microalgae)): 0.5 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes
Remarks: Fresh water

Polyphosphoric acids, sodium salts:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 1,000 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 485 mg/l
Exposure time: 48 h

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2.88 mg/l
Exposure time: 96 h
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: no
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.9 mg/l
Exposure time: 48 h
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes
Remarks: Fresh water

Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 235 mg/l Exposure time: 72 h Analytical monitoring: no Method: OECD Test Guideline 201 GLP: no Remarks: Fresh water EC10 (Pseudokirchneriella subcapitata (green algae)): 13.1 mg/l Exposure time: 72 h Analytical monitoring: no Method: OECD Test Guideline 201 GLP: no Remarks: Fresh water
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 0.23 mg/l Exposure time: 72 d Analytical monitoring: yes Method: OECD Test Guideline 210 GLP: no Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1.18 mg/l Exposure time: 21 d Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: no Remarks: Fresh water

malic acid:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 GLP: yes Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 240 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 GLP: yes Remarks: Fresh water
Toxicity to algae/aquatic plants	:	EC50 (algae): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes Remarks: Fresh water NOEC (algae): 100 mg/l Exposure time: 72 h

Method: OECD Test Guideline 201
GLP: yes
Remarks: Fresh water

sulphamidic acid:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 70.3 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 GLP: no Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 71.6 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 GLP: yes Remarks: Fresh water
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 48 mg/l End point: Growth rate Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes Remarks: Fresh water NOEC (Desmodesmus subspicatus (green algae)): 18 mg/l End point: Growth rate Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes Remarks: Fresh water
Toxicity to fish (Chronic toxicity)	:	NOEC (Danio rerio (zebra fish)): >= 60 mg/l Exposure time: 34 d Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 19 mg/l Exposure time: 21 d Method: OECD Test Guideline 211
Toxicity to microorganisms	:	EC50: > 200 mg/l End point: Respiration inhibition Exposure time: 3 h Method: OECD Test Guideline 209 GLP: yes Remarks: Fresh water

sodium toluenesulphonate:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 490 mg/l Exposure time: 96 h Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 318 mg/l Exposure time: 48 h Remarks: Fresh water
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 245 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Fresh water NOEC (Desmodesmus subspicatus (green algae)): 18 mg/l Exposure time: 72 h Remarks: Fresh water

sodium chloride:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 5,840 mg/l Exposure time: 96 h Method: ASTM E729 GLP: no
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 874 mg/l Exposure time: 48 h GLP: no
Toxicity to algae/aquatic plants	:	EC50 (Nitzschia linearis): 2,430 mg/l Exposure time: 120 h Method: OECD Test Guideline 201

dipotassium peroxodisulphate:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 76.3 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 120 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (microalgae)): 83.7 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

Ecotoxicology Assessment

Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.

dipentene:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 0.702 mg/l Exposure time: 96 h Remarks: Fresh water LC50 (Oryzias latipes (Japanese medaka)): 1.1 mg/l

Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.7 mg/l Exposure time: 48 h Remarks: Fresh water
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 1.6 mg/l Exposure time: 72 h EC50 (Selenastrum capricornutum (green algae)): > 1.81 mg/l Exposure time: 96 h NOEC (Pseudokirchneriella subcapitata (green algae)): 1.6 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.27 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	1

Persistence and degradability

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Biodegradability	:	Result: The methods for determining the biological degradability are not applicable to inorganic substances.

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 83 % Exposure time: 28 d Method: OECD Test Guideline 301B GLP: yes

malic acid:

Biodegradability	:	aerobic Result: Readily biodegradable. Biodegradation: 67.5 % Exposure time: 28 d Method: OECD Test Guideline 301B GLP: yes

sulphamidic acid:

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

sodium toluenesulphonate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 - 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

sodium chloride:

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

dipotassium peroxodisulphate:

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

dipentene:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301C

Bioaccumulative potential

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Partition coefficient: n-octanol/water : log Pow: < 0.3
Method: OECD Test Guideline 117

Polyphosphoric acids, sodium salts:

Partition coefficient: n-octanol/water : log Pow: -2

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Partition coefficient: n-octanol/water : log Pow: 1.4 (23 °C)
Method: OECD Test Guideline 123

malic acid:

Partition coefficient: n-octanol/water : log Pow: -1.26

sulphamidic acid:

Partition coefficient: n-octanol/water : log Pow: -4.34

sodium chloride:

Partition coefficient: n-octanol/water : log Pow: -3

dipentene:

Partition coefficient: n-octanol/water : log Pow: 4.57

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

Section 13: Disposal considerations

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

Section 14: Transport information

International Regulations

IATA-DGR

UN/ID No.	:	Not applicable
Proper shipping name	:	Not applicable
Class	:	Not applicable
Subsidiary risk	:	Not applicable
Packing group	:	Not applicable
Labels	:	Not applicable
Packing instruction (cargo aircraft)	:	Not applicable
Packing instruction (passen-	:	Not applicable

ger aircraft)

IMDG-Code

UN number	:	Not applicable
Proper shipping name	:	Not applicable
Class	:	Not applicable
Subsidiary risk	:	Not applicable
Packing group	:	Not applicable
Labels	:	Not applicable
EmS Code	:	Not applicable
Marine pollutant	:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

NZS 5433

UN number	:	Not applicable
Proper shipping name	:	Not applicable
Class	:	Not applicable
Subsidiary risk	:	Not applicable
Packing group	:	Not applicable
Labels	:	Not applicable
Hazchem Code	:	Not applicable

Hazard and Handling Notes.
Not dangerous cargo.
Irritating to skin.
Keep dry.
Risk of serious damage to eyes.
Keep separated from foodstuffs.

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors : Not applicable

HSNO Approval Number

HSR002530

HSW Controls

Certified handler certificate not required.
Tracking hazardous substance not required.
Refer to the Health and Safety at Work (Hazardous Substances) Regulations 2017, for further information.

Section 16: Other information

Date format : dd.mm.yyyy

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH / TWA : 8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered to be a guidance for processing and does not contain any warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is the responsibility of the recipient of the product to ensure that any proprietary rights and existing laws and legislation are observed.