SAFETY DATA SHEET

Classified as hazardous in accordance with the criteria of EPA New Zealand

Section 1 - Identification

Product Identifier

Product Name **Virkon Virucidal Disinfectant**

Recommended Use Laboratory chemicals.
Uses advised against No Information available

Product Code	**VRKVIRKON5, VRKVIRKON50, VRKVIRKON5G, VRKVIRKON5KG**
Address	Thermo Fisher Scientific New Zealand Ltd 244 Bush Road, Albany, Auckland, New Zealand
Emergency Tel.	**CHEMTREC®** **09 980 6780 or +64 9 980 6780**
Telephone / Fax Numbers	Tel: 09 980 6700 Fax: 09 980 6788
E-mail address	ANZinfo@thermofisher.com

Section 2 - Hazard(s) Identification

Classification under Work Safe New Zealand

Classified as hazardous in accordance with the criteria of EPA New Zealand

HSNO Approval Number **HSR002596**

GHS Classification

Physical hazards
Based on available data, the classification criteria are not met

Oxidizing solids	Category 3

Health hazards

Skin Corrosion/Irritation	Category 1 C
Serious Eye Damage/Eye Irritation	Category 1
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1

Environmental hazards

Chronic aquatic toxicity	Category 4

Label Elements

Signal Word **Danger**

Hazard Statements
H317 - May cause an allergic skin reaction
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H272 - May intensify fire; oxidizer
H314 - Causes severe skin burns and eye damage
H413 - May cause long lasting harmful effects to aquatic life

Precautionary Statements
Prevention
P273 - Avoid release to the environment
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves
P284 - In case of inadequate ventilation wear respiratory protection
Response
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor
P363 - Wash contaminated clothing before reuse
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
Storage
P403 - Store in a well-ventilated place
Disposal
P501 - Dispose of contents/ container to an approved waste disposal plant

Other hazards which do not result in classification
This product does not contain any known or suspected endocrine disruptors

Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Pentapotassium bis(peroxymonosulphate) bis(sulphate)	70693-62-8	40-55
Benzenesulfonic acid, C10-13-alkyl derivatives sodium salt	68411-30-3	10-12
Malic acid	6915-15-7	7-10
Sulfamic acid	5329-14-6	4-6
Sodium toluenesulfonate	12068-03-0	1-5
Sodium chloride	7647-14-5	1-5
Potassium persulfate	7727-21-1	<3

Section 4 - First Aid Measures

Description of first aid measures

New Zealand Emergency Tel. CHEMTREC®
09 980 6780 or +64 9 980 6780

Inhalation Remove to fresh air.

Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Ingestion	Clean mouth with water and drink afterwards plenty of water.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
First Aid Facilities	Eyewash, safety shower and washroom.
Most important symptoms and effects	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. . Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
Notes to Physician	Treat symptomatically.

Section 5 - Fire Fighting Measures

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Extinguishing media which must not be used for safety reasons
No information available.

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
None under normal use conditions.

Special protective equipment and precautions for fire fighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6 - Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Emergency procedures
Ensure adequate ventilation.

Environmental Precautions
See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system.

Precautions to prevent secondary hazards
Clean contaminated objects and areas thoroughly observing environmental regulations

Reference to Other Sections
Refer to protective measures listed in Sections 8 and 13.

Section 7 - Handling and Storage

Precautions for Safe Handling

Advice on safe handling

Ensure adequate ventilation.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions
Keep container tightly closed in a dry and well-ventilated place.

Incompatible Materials
None known.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

Section 8 - Exposure Controls and Personal Protection

Control parameters

Exposure limits
ACGIH - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace.

Component	New Zealand WEL	Australia	ACGIH TLV	The United Kingdom
Potassium persulfate			TWA: 0.1 mg/m³	

Biological limit values
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Individual protection measures, such as personal protective equipment

Eye Protection — Wear safety glasses with side shields (or goggles) (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

Hand Protection — Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Disposable gloves.	See manufacturers recommendations	-	AS/NZS 2161	(minimum requirement)

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Skin and body protection — Long sleeved clothing

Repiratory Protection — Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use

	and maintenance of repiratory protective devices (or AUS/NZ equivalent) When RPE is used a face piece Fit Test should be conducted
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State	Solid	
Appearance	Pink	
Odor	No information available	
Odor Threshold	No data available	
pH	2.4	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	Not applicable	
Flammability (liquid)	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Flash Point	Not applicable	**Method -** No information available
Autoignition Temperature	Not applicable	
Decomposition Temperature	No data available	
Viscosity	Not applicable	Solid
Water Solubility	No information available	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Pentapotassium bis(peroxymonosulphate) bis(sulphate)	0.3
Benzenesulfonic acid, C10-13-alkyl derivatives sodium salt	1.4
Malic acid	-1.26
Sulfamic acid	0.1

Vapor Pressure	No data available	
Density / Specific Gravity	No data available	
Bulk Density	No data available	
Vapor Density	Not applicable	Solid
Particle characteristics	No data available	

Other information

Evaporation Rate	Not applicable - Solid

Section 10 - Stability and Reactivity

Reactivity	None known, based on information available
Stability	Stable under normal conditions.
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available
Hazardous Polymerization	No information available.

Hazardous Reactions No information available.

Conditions to Avoid Heat, flames and sparks.

Incompatible Materials None known.

Hazardous Decomposition Products None under normal use conditions.

Section 11 - Toxicological Information

Acute Effects

Information on likely routes of exposure

Product Information

Inhalation Not an expected route of exposure.
Eyes Not an expected route of exposure.
Skin No known effect based on information supplied.
Ingestion Not an expected route of exposure.

Numerical measures of toxicity

(a) acute toxicity;
Oral Based on available data, the classification criteria are not met
Dermal Based on available data, the classification criteria are not met
Inhalation Based on available data, the classification criteria are not met

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Pentapotassium bis(peroxymonosulphate) bis(sulphate)	LD50 = 1204 mg/kg (Rat)	LD50 > 2000 mg/kg (Rat)	LC50 > 5 mg/L (Rat) 4 h
Benzenesulfonic acid, C10-13-alkyl derivatives sodium salt	LD50 = 404 mg/kg (Rat)	LD50 > 2000 mg/kg (Rat)	
Malic acid	3500 mg/kg bw (Rat)	>20000 mg/kg bw (Rabbit)	>1.306 mg/L air (analytical) 4h (Rat)
Sulfamic acid	3160 mg/kg (Rat)	>2000 mg/kg (Rat)	
Sodium chloride	LD50 = 3 g/kg (Rat)	LD50 > 10000 mg/kg (Rabbit)	LC50 > 42 mg/L (Rat) 1 h
Potassium persulfate	802 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	LC50 > 42.9 mg/L (Rat) 1 h

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;
Respiratory Category 1
Skin Category 1

Sensitization No information available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; Not applicable
Solid

Symptoms / effects,both acute and delayed
Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

Section 12 - Ecological Information

Ecotoxicity

Aquatic ecotoxicity Contains a substance which is:. Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Pentapotassium bis(peroxymonosulphate) bis(sulphate)	LC50: > 32 mg/L, 96h semi-static (Brachydanio rerio)			
Benzenesulfonic acid, C10-13-alkyl derivatives sodium salt	LC50: = 0.7 mg/L, 96h static (Pimephales promelas) LC50: = 5.1 mg/L, 96h flow-through (Brachydanio rerio) LC50: 0.6 - 1.9 mg/L, 96h semi-static (Brachydanio rerio) LC50: = 2.2 mg/L, 96h static (Lepomis macrochirus) LC50: = 3.4 mg/L, 96h (Pimephales promelas) LC50: 3.8 - 6.6 mg/L, 96h static (Oncorhynchus mykiss)	EC50: = 0.63 mg/L, 48h (Daphnia magna)	EC50: 4.29 - 12.5 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 11 mg/L, 72h (Pseudokirchneriella subcapitata) EC50: = 9 mg/L, 96h (Desmodesmus subspicatus)	EC50 = 45 mg/L 16 h
Malic acid	LC50: > 100 mg/L 96h (OECD 203)	LC50 = 240 mg/L 48h (OECD 202)	EC50 > 100 mg/L 72h (OECD 201)	EC50 > 300mg/L 3h (OECD 209)
Sulfamic acid	LC50: 70.3 mg/L/96h (Pimephales promelas) OECD 203	EC50: 71.6 mg/L/48h (Daphnia magna) OECD 202	EC50: 48 mg/L/72h (Scenedesmus subspicatus) OECD 201	EC50: >200 mg/L/3h (Activated sludge)
Sodium chloride	Pimephals prome: LC50: 7650 mg/L/96h	EC50: 1000 mg/L/48h		
Potassium persulfate	LC50: 100 mg/L/96h (P.reticulata)	EC50: 357 mg/L/24H (Daphnia magna)		

Terrestrial ecotoxicity

Component	Earthworm	Avian	Honeybees
Benzenesulfonic acid, C10-13-alkyl	Acute toxicity: LC50 > 1000		

derivatives sodium salt	mg/kg (Eisenia foetida, 14 Days, soil dry weight)		
Sodium chloride	Acute toxicity: LC50 0.1 - 1 mg/cm2 (Eisenia foetida, 48 h, filter paper)		

Persistence and Degradability No information available

Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative Potential No information available

Component	log Pow	Bioconcentration factor (BCF)
Pentapotassium bis(peroxymonosulphate) bis(sulphate)	0.3	No data available
Benzenesulfonic acid, C10-13-alkyl derivatives sodium salt	1.4	87 L/kg
Malic acid	-1.26	No data available
Sulfamic acid	0.1	No data available

Mobility No information available.

Other adverse effects

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors
Persistent Organic Pollutant This product does not contain any known or suspected substance
Ozone Depletion Potential This product does not contain any known or suspected substance

Section 13 - Disposal Considerations

Waste treatment methods

Waste from Residues/Unused Products Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

Other Information Disposal agencies or waste contractors must comply with the New Zealand Hazardous Substances (Disposal) Regulations . Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

Section 14 - Transport Information

Component	Hazchem Code
Sulfamic acid 5329-14-6 (4-6)	2X
Potassium persulfate 7727-21-1 (<3)	2Z

NZS 5433:2020 Not regulated

IATA Not regulated

IMDG/IMO Not regulated

Component	IMDG Marine Pollutant
Benzenesulfonic acid, C10-13-alkyl derivatives sodium salt 68411-30-3 (10-12)	IMDG regulated marine pollutant (Listed in the index)

Environmental hazards No hazards identified

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable, packaged goods

Special Precautions No special precautions required. Please refer to the applicable dangerous goods regulations for additional information.

Additional information None known

Section 15 - Regulatory Information

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

HSNO Approval Number	HSR002596

National Regulations
There are no applicable tolerable exposure limits or environmental exposure limits according to the EPA Controls for Hazardous Substances

Certified handlers, tracking and controlled substance license requirements
Certified handlers are required for some substances. This includes substances requiring a controlled substance license, and most explosives, vertebrates toxic agents, and certain fumigants. Acutely toxic substances which are a Category 1 or 2, such as pesticides also require Certified handlers. Please check the Health and Safety at Work Act 2015 for further information. Tracking is required for some highly hazardous substances. These substances need to be under the control of an appropriately trained person or appropriately secured. Please check the Health and Safety at Work Act 2015 for further information.

Prohibition or notification/licensing requirements
Shown below are details of specific prohibition/notifications or licencing requirements when they apply.

International Regulations

Ozone Depletion Potential This product does not contain any known or suspected substance

Persistent Organic Pollutant This product does not contain any known or suspected substance

Rotterdam Convention (PIC) Not applicable

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	IMDG Marine Pollutant
Benzenesulfonic acid, C10-13-alkyl derivatives sodium salt			IMDG regulated marine pollutant (Listed in the index)

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Sulfamic acid	-	Use restricted. See item 75. (see link for restriction details)	-
Potassium persulfate	-	Use restricted. See item 75.	-

		(see link for restriction details)	

https://echa.europa.eu/substances-restricted-under-reach

International Inventories

New Zealand (NZIoC), Australia (AICS), Europe (EINECS/ELINCS/NLP), Korea (KECL), China (IECSC), Taiwan (TCSI), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	NZIoC	AICS	EINECS	ELINCS	NLP	KECL	IECSC	TCSI
Pentapotassium bis(peroxymonosulphate) bis(sulphate)	70693-62-8	X	X	274-778-7	-	-	KE-29181	X	X
Benzenesulfonic acid, C10-13-alkyl derivatives sodium salt	68411-30-3	X	X	270-115-0	-	-	KE-02606	X	X
Malic acid	6915-15-7	X	X	230-022-8	-	-	KE-20414	X	X
Sulfamic acid	5329-14-6	X	X	226-218-8	-	-	KE-32336	X	X
Sodium toluenesulfonate	12068-03-0	X	X	235-088-1	-	-	2000-3-14 02	X	X
Sodium chloride	7647-14-5	X	X	231-598-3	-	-	KE-31387	X	X
Potassium persulfate	7727-21-1	X	X	231-781-8	-	-	KE-12177	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	PICCS	ISHL	ENCS
Pentapotassium bis(peroxymonosulphate) bis(sulphate)	70693-62-8	X	ACTIVE	X	-	X	-	-
Benzenesulfonic acid, C10-13-alkyl derivatives sodium salt	68411-30-3	-	-	X	-	X	X	X
Malic acid	6915-15-7	X	ACTIVE	X	-	X	X	X
Sulfamic acid	5329-14-6	X	ACTIVE	X	-	X	X	X
Sodium toluenesulfonate	12068-03-0	X	ACTIVE	X	-	X	X	X
Sodium chloride	7647-14-5	X	ACTIVE	X	-	X	X	X
Potassium persulfate	7727-21-1	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Section 16 - Other Information

This safety data sheet complies with the requirements of the EPA Hazardous Substances (Hazard Classification) Notice 2020 and WorkSafe New Zealand Regulations

Legend

NZIoC - New Zealand Inventory of Chemicals
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - Chinese Inventory of Existing Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
NZS 5433:2020 - Transport of Dangerous Goods on Land
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
WEL - Workplace Exposure Limit
DNEL - Derived No Effect Level
POW - Partition coefficient Octanol:Water

AICS - Australian Inventory of Chemical Substances
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japanese Existing and New Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances
CAS - Chemical Abstracts Service
ACGIH - American Conference of Governmental Industrial Hygienists
PNEC - Predicted No Effect Concentration
OECD - Organisation for Economic Co-operation and Development
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
ADG - Australian Code for the Transport of Dangerous Goods by Road and Rail
LC50 - Lethal Concentration 50%
ATE - Acute Toxicity Estimate
RPE - Respiratory Protective Equipment
NOEC - No Observed Effect Concentration
BCF - Bioconcentration factor

vPvB - very Persistent, very Bioaccumulative
PBT - Persistent, Bioaccumulative, Toxic
VOC - (Volatile Organic Compound)

Key literature references and sources for data
HSNO classifications provided in the New Zealand Chemical Classification Information Database (CCID).
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS
EPA Guide to classifying hazardous substances in New Zealand
EPA - Assigning a product to an existing HSNO approval guide

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards	On basis of test data
Health Hazards	Calculation method
Environmental hazards	Calculation method

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Revision Date	14-Jul-2023
Revision Summary	Update to GHS format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. 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 a 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

End of Safety Data Sheet