SAFETY DATA SHEET

Australian statement of hazardous nature : Classified as hazardous according to criteria of Safe Work Australia

Section 1 - Identification

Product Name	**Oxone**
CAS No	70693-62-8
Synonyms	Oxone; Potassium monopersulfate; Potassium monopersulfate triple salt

Product Code	**R21723**
Address	ThermoFisher Scientific Australia Pty Ltd 5 Caribbean Drive, Scoresby VICTORIA 3179, Australia
Emergency Tel.	**CHEMTREC®** **03 9757 4559 or +613 9757 4559**
Telephone / Fax Numbers	Tel: 1300 735 292 Fax: 1800 067 639
E-mail address	ANZinfo@thermofisher.com

Recommended Use	Laboratory chemicals.
Uses advised against	This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list. This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern.

Section 2 - Hazard(s) Identification

Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

Physical hazards
No hazards identified

Health hazards

Acute Oral Toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 4
Skin Corrosion/Irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1

Environmental hazards

Chronic aquatic toxicity	Category 3

Label Elements


Exclamation Mark


Health Hazard


Corrosion

Signal Word **Danger**

Hazard Statements
H314 - Causes severe skin burns and eye damage
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H317 - May cause an allergic skin reaction
H412 - Harmful to aquatic life with long lasting effects
H302 + H332 - Harmful if swallowed or if inhaled

Precautionary Statements
P270 - Do not eat, drink or smoke when using this product
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P284 - In case of inadequate ventilation wear respiratory protection
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor
P330 - Rinse mouth
P331 - Do NOT induce vomiting
P363 - Wash contaminated clothing before reuse
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P501 - Dispose of contents/ container to an approved waste disposal plant

Other information

Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)	70693-62-8	>85
Potassium pyrosulfate	7790-62-7	<5
Potassium persulfate	7727-21-1	<5
Potassium hydrogen sulfate	7646-93-7	<5

Section 4 - First Aid Measures

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Ingestion Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water.

	Never give anything by mouth to an unconscious person.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.
General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
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. Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: 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
CO_2, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons
Do not use water jetstream.

Hazardous Decomposition Products
Carbon monoxide (CO), Carbon dioxide (CO_2), Sulfur oxides, Potassium oxides.

Decomposition Temperature
>70 °C

Specific Hazards Arising from the Chemical
The product causes burns of eyes, skin and mucous membranes. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.).

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. Thermal decomposition can lead to release of irritating gases and vapors.

Section 6 - Accidental Release Measures

Emergency procedures
Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.

Environmental Precautions
Should not be released into the environment. Do not allow material to contaminate ground water system. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up

Clean-up methods - small spillage
Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal.

Clean-up methods - large spillage
Typically only supplied is small quantiites as packaged goods.
If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

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

Section 7 - Handling and Storage

Precautions for Safe Handling
Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

Conditions for Safe Storage, Including any Incompatibilities
Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Corrosives area. Store under an inert atmosphere. Protect from moisture.

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

Section 8 - Exposure Controls and Personal Protection

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	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Potassium persulfate			TWA: 0.1 mg/m^3		

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

Exposure Controls
Engineering Measures
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. 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

Personal protective equipment

Eye Protection — 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
Butyl rubber	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
Recommended Filter type:	Particulates filter conforming to EN 143 (or AUS/NZ equivalent)
Recommended half mask:-	Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (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.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	White	
Physical State	Solid	
Odor	Odorless	
Odor Threshold	No data available	
pH	2-3	10 g/L aq.sol
Melting Point/Range	No information available	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flash Point	No information available	**Method -** No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	negligible	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	No data available	
Bulk Density	No data available	
Water Solubility	298 g/L (20°C)	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)	0.3

Autoignition Temperature	No data available	
Decomposition Temperature	>70 °C	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	Oxidizer	

Other information

Molecular Formula	H3 K5 O18 S4
Molecular Weight	614.78

Section 10 - Stability and Reactivity

Reactivity None known, based on information available

Stability Hygroscopic. Oxidizer: Contact with combustible/organic material may cause fire.

Conditions to Avoid Incompatible products, Excess heat, Combustible material, Avoid dust formation, Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Strong reducing agents, Combustible material.

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO_2). Sulfur oxides. Potassium oxides.

Hazardous Polymerization Hazardous polymerization does not occur.

Section 11 - Toxicological Information

Information on Toxicological Effects

Product Information

(a) acute toxicity;

Oral Category 4
Dermal Based on available data, the classification criteria are not met
Inhalation Category 4

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)	1204 mg/kg (Rat)	> 11000 mg/kg (Rabbit)	> 14 mg/L (Rat) 1 h
Potassium persulfate	802 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	LC50 > 42.9 mg/L (Rat) 1 h
Potassium hydrogen sulfate	LD50 = 2340 mg/kg (Rat)		

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

(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 Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: 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 effects The product contains following substances which are hazardous for the environment. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Contains a substance which is:. Harmful to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)	LC50: > 32 mg/L, 96h semi-static (Brachydanio rerio)			EC50 = 179 mg/L 18 h
Potassium persulfate	LC50: 100 mg/L/96h (P.reticulata)	EC50: 357 mg/L/24H (Daphnia magna)		

Persistence and Degradability
Persistence Soluble in water, Persistence is unlikely, based on 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 Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)	0.3	No data available

Mobility The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility Highly mobile in soils
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 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 Chemical wastes should be disposed through a licensed commercial waste collection service. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

Section 14 - Transport Information

IMDG/IMO

UN-No UN3260
Proper Shipping Name Corrosive solid, acidic, inorganic, n.o.s.
Technical Shipping Name Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)
Hazard Class 8
Packing Group II

ADG

UN-No	UN3260
Proper Shipping Name	Corrosive solid, acidic, inorganic, n.o.s.
Technical Shipping Name	Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)
Hazard Class	8
Packing Group	II

Component	Hazchem Code
Potassium persulfate 7727-21-1 (<5)	2Z
Potassium hydrogen sulfate 7646-93-7 (<5)	2X

IATA

UN-No	UN3260
Proper Shipping Name	Corrosive solid, acidic, inorganic, n.o.s.
Technical Shipping Name	Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)
Hazard Class	8
Packing Group	II

Environmental hazards No hazards identified

Special Precautions No special precautions required

Additional information None known

Section 15 - Regulatory Information

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

National Regulations **Australia**

See section 8 for national exposure control parameters.

Standard for the Uniform Scheduling of Medicines and Poisons
Classified as a scheduled poison according to the Standard for Uniform Scheduling of Medicines and Poisons.

Component	Standard for the Uniform Scheduling of Medicines and Poisons
Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2) - 70693-62-8	Schedule 5 listed - in preparations being: solid preparations the pH of which in a 10 g/L aqueous solution is <2.5;liquid or semi-solid preparations the pH of which is <2.5 Schedule 6 listed - except: a) when included in Schedule 5, b) in solid orthodontic device cleaning preparations, the pH of which as an in-use aqueous solution is between 2.5-11.5, or c) preparations containing <=5% of Potassium peroxomonosulfate triple salt being: [i] solid preparations the pH of which in a 10 g/L aqueous solution is >=2.5, or [ii] liquid or semi-solid preparations the pH of which is >=2.5
Potassium persulfate - 7727-21-1	Schedule 6 listed - in hair preparations

Australian Industrial Chemicals Introduction Scheme (AICIS)

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2) - 70693-62-8	Present	-
Potassium pyrosulfate - 7790-62-7	Present	-
Potassium persulfate - 7727-21-1	Present	Specific information requirement: Obligations to provide information

		apply. You must tell us within 28 days if the circumstances of your importation or manufacture (introduction) are different to those in our assessment.
Potassium hydrogen sulfate - 7646-93-7	Present	-

Australian - Illicit Drug Precursors/Reagents Substance List
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

Chemicals of Security Concern
This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

National pollutant inventory Not applicable

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

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

International Inventories

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	ISHL	IECSC	KECL
Potassium peroxymonosulfate sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)	X	X	274-778-7	-	X	X	-	X	-		X	KE-29181
Potassium pyrosulfate	X	X	232-216-8	-	X	X	-	X	-		X	KE-12142
Potassium persulfate	X	X	231-781-8	-	X	X	-	X	X	X	X	KE-12177
Potassium hydrogen sulfate	X	X	231-594-1	-	X	X	-	X	X	X	X	KE-32642

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

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

Basel convention on the control of transboundary movements of hazardous wastes and their dispoal
Not applicable.

Component	CAS No	OECD HPV	Restriction of Hazardous Substances (RoHS)	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Potassium peroxymonosulfate	70693-62-8	Listed	Not applicable	Not applicable	Not applicable

sulfate (K5(HSO3(O2))(SO3(O2))(HSO4)2)					
Potassium pyrosulfate	7790-62-7	Not applicable	Not applicable	Not applicable	Not applicable
Potassium persulfate	7727-21-1	Listed	Not applicable	Not applicable	Not applicable
Potassium hydrogen sulfate	7646-93-7	Not applicable	Not applicable	Not applicable	Not applicable

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)
Potassium persulfate	-	Use restricted. See item 75. (see link for restriction details)	-
Potassium hydrogen sulfate	-	Use restricted. See item 75. (see link for restriction details)	-

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

Section 16 - Other Information

Legend

AICS - Australian Inventory of Chemical Substances
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
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
NZS 5433:2012 - Transport of Dangerous Goods on Land
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
WEL - Workplace Exposure Limit
DNEL - Derived No Effect Level
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative
VOC - (Volatile Organic Compound)

NZIoC - New Zealand Inventory of Chemicals
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
Predicted No Effect Concentration (PNEC)
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
LC50 - Lethal Concentration 50%
ATE - Acute Toxicity Estimate
RPE - Respiratory Protective Equipment
NOEC - No Observed Effect Concentration
BCF - Bioconcentration factor
PBT - Persistent, Bioaccumulative, Toxic

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

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.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.
Chemical incident response training.

Revision Date	20-Nov-2022
Revision Summary	Initial Release.

This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).

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