

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

Section 1 - Identification

Product Name 2-Butanone oxime

CAS No 96-29-7

Synonyms Methyl ethyl ketoxime

Product Code 403330000; 403330250; 403331000

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 3
Acute Dermal Toxicity	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Skin Sensitization	Category 1
Carcinogenicity	Category 1B
Specific target organ toxicity - (single exposure)	Category 3 Category 1
Specific target organ toxicity - (repeated exposure)	Category 2

Environmental hazards

No hazards identified

Label Elements



Skull and Crossbones



Health Hazard



Corrosion

Signal Word**Danger****Hazard Statements**

H301 - Toxic if swallowed
 H312 - Harmful in contact with skin
 H315 - Causes skin irritation
 H317 - May cause an allergic skin reaction
 H318 - Causes serious eye damage
 H336 - May cause drowsiness or dizziness
 H350 - May cause cancer
 H370 - Causes damage to organs
 H373 - May cause damage to organs through prolonged or repeated exposure
 Combustible liquid

Precautionary Statements

P201 - Obtain special instructions before use
 P202 - Do not handle until all safety precautions have been read and understood
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
 P241 - Use explosion-proof electrical/ ventilating/ lighting equipment
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray
 P264 - Wash face, hands and any exposed skin thoroughly after handling
 P270 - Do not eat, drink or smoke when using this product
 P271 - Use only outdoors or in a well-ventilated area
 P272 - Contaminated work clothing should not be allowed out of the workplace
 P280 - Wear protective gloves
 P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
 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
 P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
 P308 + P311 - IF exposed or concerned: Call a POISON CENTER or doctor
 P362 + P364 - Take off contaminated clothing and wash it before reuse
 P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
 P405 - Store locked up
 P501 - Dispose of contents/ container to an approved waste disposal plant

Other information

Toxicity to Soil Dwelling Organisms
 Toxic to terrestrial vertebrates

Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Methyl ethyl ketoxime	96-29-7	<100

Section 4 - First Aid Measures

Inhalation	Remove to fresh air. If not breathing, give artificial respiration. 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. Immediate medical attention is required.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Self-Protection of the First Aider	Use personal protective equipment as required.
First Aid Facilities	Eyewash, safety shower and washroom.
Most important symptoms and effects	Causes severe eye damage. May cause allergic skin reaction. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting; 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

Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

No information available.

Hazardous Decomposition Products

Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂).

Decomposition Temperature

> 150°C

Specific Hazards Arising from the Chemical

Combustible material. Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

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

Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up

Clean-up methods - small spillage

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition.

Clean-up methods - large spillage

Typically only supplied in small quantities 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 mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition.

Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.

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

AS 1940-2004 - The storage and handling of flammable and combustible liquids

Section 8 - Exposure Controls and Personal Protection

Exposure limits

DE - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Methyl ethyl ketoxime					TWA: 0.3 ppm (8 Stunden). AGW - exposure factor 8 TWA: 1 mg/m ³ (8 Stunden). AGW - exposure factor 8 Haut

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. Use explosion-proof electrical/ventilating/lighting equipment. 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
Nitrile rubber	See manufacturers	-	AS/NZS 2161	(minimum requirement)
Neoprene	recommendations			
Natural rubber				
PVC				

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

Respiratory 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 respiratory protective devices

Recommended Filter type:

Organic gases and vapours filter Type A Brown conforming to EN14387 (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	Light yellow	
Physical State	Liquid	
Odor	No information available	
Odor Threshold	No data available	
pH	6.5	114 g/l aq. sol
Melting Point/Range	-30 °C / -22 °F	
Softening Point	No data available	
Boiling Point/Range	72 °C / 161.6 °F	@ 25 mmHg
Flash Point	62 °C / 143.6 °F	Method - No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	Lower 1.9 Upper 12.3	
Vapor Pressure	3.5 hPa @ 20 °C	
Vapor Density	3.0 (Air = 1.0)	(Air = 1.0)
Specific Gravity / Density	0.923	
Bulk Density	Not applicable	Liquid
Water Solubility	114 g/l water (20°C)	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Methyl ethyl ketoxime	0.65	
Autoignition Temperature	315 °C / 599 °F	
Decomposition Temperature	> 150°C	
Viscosity	15 mPa.s at 20 °C	

Explosive Properties
Oxidizing Properties

No information available

explosive air/vapour mixtures possible

Other information**Molecular Formula**C₄ H₉ N O**Molecular Weight**

87.12

Section 10 - Stability and Reactivity**Reactivity**

None known, based on information available

Stability

Stable under normal conditions.

Conditions to Avoid

Incompatible products, Excess heat, Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials

Strong oxidizing agents, Strong acids, Strong bases, Peroxides.

Hazardous Decomposition Products Nitrogen oxides (NO_x). Carbon monoxide (CO). Carbon dioxide (CO₂).**Hazardous Polymerization**

Hazardous polymerization does not occur.

Section 11 - Toxicological Information**Information on Toxicological Effects****Product Information****(a) acute toxicity;****Oral**

Category 3

Dermal

Category 4

Inhalation

Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl ethyl ketoxime	930 mg/kg (Rat) 2528 mg/kg (Rat)	> 1000 mg/kg (Rabbit)	LC50 > 4.83 mg/L (Rat) 4 h

(b) skin corrosion/irritation;

Category 2

(c) serious eye damage/irritation;

Category 1

(d) respiratory or skin sensitization;**Respiratory**

No data available

Skin

Category 1

Sensitization

May cause sensitization by skin contact

(e) germ cell mutagenicity;

No data available

(f) carcinogenicity;

Category 1B

Possible cancer hazard. May cause cancer based on animal data The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	Australia	New Zealand	New South Wales	Western Australia	IARC	EU	UK	Germany
Methyl ethyl ketoxime						Carc Cat. 1B		Cat. 2

(g) reproductive toxicity;	No data available
(h) STOT-single exposure;	Category 3
Results / Target organs	Central nervous system (CNS)
(i) STOT-repeated exposure;	Category 2
Target Organs	No information available.
(j) aspiration hazard;	No data available
Symptoms / effects, both acute and delayed	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: 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	Do not empty into drains. Do not flush into surface water or sanitary sewer system. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.													
<table><tr><th>Component</th><th>Freshwater Fish</th><th>Water Flea</th><th>Freshwater Algae</th><th>Microtox</th></tr><tr><td>Methyl ethyl ketoxime</td><td>LC50: = 760 mg/L, 96h static (Poecilia reticulata) LC50: 777 - 914 mg/L, 96h flow-through (Pimephales promelas)</td><td>EC50: = 750 mg/L, 48h (Daphnia magna)</td><td>EC50: = 83 mg/L, 72h (Desmodesmus subspicatus)</td><td>EC50 = 281 mg/L 17 h EC50 = 950 mg/L 5 min</td></tr></table>	Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox	Methyl ethyl ketoxime	LC50: = 760 mg/L, 96h static (Poecilia reticulata) LC50: 777 - 914 mg/L, 96h flow-through (Pimephales promelas)	EC50: = 750 mg/L, 48h (Daphnia magna)	EC50: = 83 mg/L, 72h (Desmodesmus subspicatus)	EC50 = 281 mg/L 17 h EC50 = 950 mg/L 5 min				
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Persistence and Degradability	Persistence is unlikely, based on information available.													
Persistence	Contains substances known to be hazardous to the environment or not degradable in waste													
Degradation in sewage treatment plant	water treatment plants.													
Bioaccumulative Potential	Bioaccumulation is unlikely													
<table><tr><th>Component</th><th>log Pow</th><th>Bioconcentration factor (BCF)</th></tr><tr><td>Methyl ethyl ketoxime</td><td>0.65</td><td>2.5 - 5.8 dimensionless</td></tr></table>	Component	log Pow	Bioconcentration factor (BCF)	Methyl ethyl ketoxime	0.65	2.5 - 5.8 dimensionless								
Component	log Pow	Bioconcentration factor (BCF)												
Methyl ethyl ketoxime	0.65	2.5 - 5.8 dimensionless												
Mobility	The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility Disperses rapidly in air													
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. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.
Other Information	Chemical wastes should be disposed through a licensed commercial waste collection service. Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains.

Section 14 - Transport Information

IMDG/IMO

UN-No UN2810
Proper Shipping Name TOXIC LIQUID, ORGANIC, N.O.S.
Technical Shipping Name 2-Butanone oxime
Hazard Class 6.1
Packing Group III

ADG

UN-No UN2810
Proper Shipping Name TOXIC LIQUID, ORGANIC, N.O.S.
Technical Shipping Name 2-Butanone oxime
Hazard Class 6.1
Packing Group III

IATA

UN-No UN2810
Proper Shipping Name TOXIC LIQUID, ORGANIC, N.O.S.
Technical Shipping Name 2-Butanone oxime
Hazard Class 6.1
Packing Group III

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
Methyl ethyl ketoxime - 96-29-7	Schedule 6 listed - except: in viscous silicone adhesives or viscous silicone sealants containing <=2.5% of Methyl ethyl ketone oxime, or in other preparations containing <=1% of Methyl ethyl ketone oxime

Australian Industrial Chemicals Introduction Scheme (AICIS)

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
Methyl ethyl ketoxime - 96-29-7	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
Methyl ethyl ketoxime	X	X	202-496-6	-	X	X	-	X	X	X	X	KE-03881

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 disposal

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
Methyl ethyl ketoxime	96-29-7	Listed	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)
Methyl ethyl ketoxime	-	Use restricted. See item 75. (see link for restriction details) Use restricted. See item 28. (see link for restriction details)	-

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

Section 16 - Other Information

Legend

AICS - Australian Inventory of Chemical Substances	NZIoC - New Zealand Inventory of Chemicals
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory	EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List	ENCS - Japanese Existing and New Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances	KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances	CAS - Chemical Abstracts Service
TWA - Time Weighted Average	ACGIH - American Conference of Governmental Industrial Hygienists
IARC - International Agency for Research on Cancer	Predicted No Effect Concentration (PNEC)
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association	IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
MARPOL - International Convention for the Prevention of Pollution from Ships	
NZS 5433:2012 - Transport of Dangerous Goods on Land	OECD - Organisation for Economic Co-operation and Development
LD50 - Lethal Dose 50%	LC50 - Lethal Concentration 50%
EC50 - Effective Concentration 50%	ATE - Acute Toxicity Estimate
WEL - Workplace Exposure Limit	RPE - Respiratory Protective Equipment
DNEL - Derived No Effect Level	NOEC - No Observed Effect Concentration
POW - Partition coefficient Octanol:Water	BCF - Bioconcentration factor
vPvB - very Persistent, very Bioaccumulative	PBT - Persistent, Bioaccumulative, Toxic
VOC - (Volatile Organic Compound)	

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

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.

Revision Date	17-Nov-2022
Revision Summary	SDS sections updated, 2, 3, 14.

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