acc. to Safe Work Australia - Code of Practice

Isobutyl methylketone ROTIPURAN® ≥98,5 %, p.a., ACS

article number: 0338 Version: GHS 5.0 en Replaces version of: 2021-10-15 Version: (GHS 4)

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

Product identifier 1.1

Identification of the substance

Article number

CAS number

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses:

Uses advised against:

Laboratory chemical Laboratory and analytical use

p.a., AČS

108-10-1

0338

Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household). Food, drink and animal feedingstuffs.

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Details of the supplier of the safety data sheet 1.3

Carl Roth GmbH + Co. KG Schoemperlenstr. 3-5 D-76185 Karlsruhe Germany

Telephone:+49 (0) 721 - 56 06 0 Telefax: +49 (0) 721 - 56 06 149 e-mail: sicherheit@carlroth.de Website: www.carlroth.de

Competent person responsible for the safety data Department Health, Safety and Environment sheet:

e-mail (competent person):

sicherheit@carlroth.de

1.4 **Emergency telephone number**

Name	Street	Postal code/city	Telephone	Website
NSW Poisons Information Centre Childrens Hospital	Hawkesbury Road	2145 West- mead, NSW	131126	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	n Hazard class		Hazard class and category	Hazard statement
2.6	Flammable liquid	2	Flam. Liq. 2	H225
3.1I	Acute toxicity (inhal.)	4	Acute Tox. 4	H332
3.3	Serious eye damage/eye irritation	2	Eye Irrit. 2	H319
3.6	Carcinogenicity	2	Carc. 2	H351

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Section	Section Hazard class		Hazard class and category	Hazard statement
3.8R	Specific target organ toxicity - single exposure (respirat- ory tract irritation)	3	STOT SE 3	H335
3.8D	Specific target organ toxicity - single exposure (narcotic effects, drowsiness)	3	STOT SE 3	H336

Supplemental hazard information

Code	Supplemental hazard information
AUH066	repeated exposure may cause skin dryness or cracking

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling

Signal word Danger

Pictograms



Hazard statements

H225	Highly flammable liquid and vapour
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H351	Suspected of causing cancer

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat/sparks/open flames/hot surfaces No smoking
P261	Avoid breathing dust/fume/gas/mist/vapours/spray

Precautionary statements - response

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact
	lenses, if present and easy to do. Continue rinsing
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher for extinction

Precautionary statements - storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed
P403+P235	Store in a well-ventilated place. Keep cool

Precautionary statements - disposal

P501	Dispose of contents/o	container to industria	l combustion plant

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For professional users only

Supplemental hazard information

AUH066 Repeated exposure may cause skin dryness or cracking.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\ge 0,1\%$.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substanceIsobutyl methylketoneMolecular formulaC6H12OMolar mass100.2 g/molCAS No108-10-1

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

4.2 Most important symptoms and effects, both acute and delayed

Irritation, Cough, Dyspnoea, Dizziness, Drowsiness, Narcosis

4.3 Indication of any immediate medical attention and special treatment needed

none

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SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings! water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. In case of insufficient ventilation and/or in use, may form flammable/explosive vapourair mixture. Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Vapours may form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated: Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

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6.4 Reference to other sections

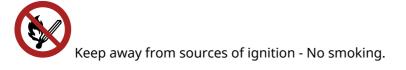
Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation. Avoid exposure.

Measures to prevent fire as well as aerosol and dust generation



Take precautionary measures against static discharge. Due to danger of explosion, prevent leakage

of vapours into cellars, flues and ditches.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. May cause decomposition by long-term light influence.

Incompatible substances or mixtures

Observe hints for combined storage.

Protect against external exposure, such as

direct light irradiation, contact with air/oxygen

Consideration of other advice:

Ground/bond container and receiving equipment.

Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C

7.3 Specific end use(s)

No information available.

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SECTION 8: Exposure controls/personal protection

8.1 **Control parameters**

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Cou ntr y	Name of agent	CAS No	Identi- fier	TW A [pp m]	TWA [mg/ m³]	STE L [pp m]	STEL [mg/ m³]	Ceil ing- C [pp m]	Ceil- ing-C [mg/ m³]	Nota- tion	Source
AU	methyl isobutyl ketone (MIBK) (4- methyl-2-pentanone) (hexone)	108-10-1	WES	50	205	75	307				WES

Notation

Ceiling-C STEL Ceiling value is a limit value above which exposure should not occur

Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified) Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

TWA

Human health values

Relevant DNE	Relevant DNELs and other threshold levels									
Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time						
DNEL	83 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects						
DNEL	DNEL 208 mg/m ³ human, inhalatory		worker (industry)	acute - systemic effects						
DNEL	83 mg/m³	human, inhalatory	worker (industry)	chronic - local effects						
DNEL	208 mg/m ³	human, inhalatory	worker (industry)	acute - local effects						
DNEL	11.8 mg/kg bw/ day	human, dermal	worker (industry)	chronic - systemic effects						

Environmental values

Relevant PNECs and other threshold levels									
End- point	Threshold level	Organism	Environmental com- partment	Exposure time					
PNEC	0.6 ^{mg} / _l	aquatic organisms	freshwater	short-term (single instance)					
PNEC	0.06 ^{mg} / _l	aquatic organisms	marine water	short-term (single instance)					
PNEC	27.5 ^{mg} / _l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)					
PNEC	8.27 ^{mg} / _{kg}	aquatic organisms	freshwater sediment	short-term (single instance)					
PNEC	0.83 ^{mg} / _{kg}	aquatic organisms	marine sediment	short-term (single instance)					
PNEC	1.3 ^{mg} / _{kg}	terrestrial organisms	soil	short-term (single instance)					

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8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a consider-able reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

PE: polyethylene, Butyl caoutchouc (butyl rubber)

• material thickness

0,7mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• Splash protection - Protective gloves

- type of material: Butyl caoutchouc (butyl rubber)
- material thickness: 0,7mm
- breakthrough times of the glove material:

>240 minutes (permeation: level 5)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Flame-retardant protective clothing.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C , colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.



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SECTION 9: Physical and chemical properties

9.1	Information on basic physical and chemical properties		
	Physical state	liquid	
	Colour	colourless	
	Odour	characteristic	
	Odour threshold	0.04 – 0.08 ppm	
	Melting point/freezing point	-84 °C	
	Boiling point or initial boiling point and boiling range	114 – 118 °C at 1,013 hPa	
	Flammability	flammable liquid in accordance with GHS criteria	
	Lower and upper explosion limit	1.2 vol% (LEL) - 8 vol% (UEL)	
	Flash point	14 °C (c.c.)	
	Auto-ignition temperature	460 °C (DIN 51794)	
	Decomposition temperature	not relevant	
	pH (value)	not determined	
	Kinematic viscosity	0.7375 ^{mm²} / _s at 20 °C	
	Dynamic viscosity	0.59 mPa s at 20 °C	
	Solubility(ies)		
	Water solubility	14.1 ^g / _l at 20 °C (ECHA)	
	Partition coefficient		
	Partition coefficient n-octanol/water (log value):	1.9 (pH value: 6.7, 20 °C) (ECHA) (OECD Prüfrichtlinie 117)	
	Soil organic carbon/water (log KOC)	2.008 (ECHA)	
	Vapour pressure	20 hPa at 20 °C	
	Density and/or relative density		
	Density	0.8 ^g / _{cm³} at 20 °C	
	Relative vapour density	3.46 (air = 1)	
	Particle characteristics	not relevant (liquid)	
	Other safety parameters		
	Oxidising properties	none	
9.2	Other information		

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Information with regard to physical hazard classes:

There is no additional information.

Other safety characteristics:

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

It's a reactive substance. Risk of ignition. Vapours may form explosive mixtures with air. May form explosive peroxides.

If heated

Risk of ignition.

10.2 Chemical stability

May cause decomposition by long-term light influence.

10.3 Possibility of hazardous reactions

Violent reaction with: strong oxidiser, Aldehydes, Nitric acid

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Direct light irradiation. Peroxide formation possible with air oxygen.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5. Peroxides.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to GHS

Acute toxicity

Harmful if inhaled.

GHS of the United Nations, annex 4. May be harmful if swallowed or in contact with skin.

Acute toxicity					
Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	2,080 ^{mg} / _{kg}	rat		TOXNET
dermal	LD50	3,000 ^{mg} / _{kg}	rabbit		TOXNET
inhalation: vapour	LC50	11.6 ^{mg} / _l /4h	rat		ECHA

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.



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Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

vomiting, nausea, gastrointestinal complaints

• If in eyes

Causes serious eye irritation

• If inhaled

Irritation to respiratory tract, fatigue, narcosis, cough, Dyspnoea

• If on skin

repeated exposure may cause skin dryness or cracking

• Other information

Liver and kidney damage, Headache, Narcosis, Nausea, Vertigo, Inebriation

11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\ge 0,1\%$.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)				
Endpoint	Value	Species	Source	Exposure time
LC50	>179 ^{mg} / _l	fish	ECHA	96 h
EC50	>200 ^{mg} / _l	aquatic invertebrates	ECHA	48 h

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Aquatic toxicity (chronic)				
Endpoint	Value	Species	Source	Exposure time
EC50	3,623 ^{mg} / _l	aquatic invertebrates	ECHA	24 h

12.2 Persistence and degradability

Theoretical Oxygen Demand: 2.715 ^{mg}/_{mg} Theoretical Carbon Dioxide: 2.636 ^{mg}/_{mg}

Biodegradation

The substance is readily biodegradable.

Process of degradability		
Process	Degradation rate	Time
biotic/abiotic	83 %	28 d
oxygen depletion	83 %	28 d

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW)	1.9 (pH value: 6.7, 20 °C) (ECHA) (OECD Prüfrichtlinie 117)

12.4 Mobility in soil

Henry's law constant	18.75 ^{Pa m³} / _{mol} at 20 °C (ECHA)
The Organic Carbon normalised adsorption coefficient	2.008 (ECHA)

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\ge 0,1\%$.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

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Waste treatment of containers/packagings

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

Relevant provisions relating to waste(Basel Convention)

Properties of waste which render it hazardous

H3 Flammable liquids

H11 Toxic (Delayed or chronic)

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions. Non-contaminated packages may be recycled.

SECTION 14: Transport information

14.1 UN number

	UN RTDG	UN 1245
	IMDG-Code	UN 1245
	ICAO-TI	UN 1245
14.2	UN proper shipping name	
	UN RTDG	METHYL ISOBUTYL KETONE
	IMDG-Code	METHYL ISOBUTYL KETONE
	ICAO-TI	Methyl isobutyl ketone
14.3	Transport hazard class(es)	
	UN RTDG	3
	IMDG-Code	3
	ICAO-TI	3
14.4	Packing group	
	UN RTDG	II
	IMDG-Code	II
	ICAO-TI	II
14.5	Environmental hazards	non-environmentally hazardous acc. to the dan- gerous goods regulations

14.6 Special precautions for user

There is no additional information.

14.7 Transport in bulk according to IMO instruments The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

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Transport informationNational regulationsAdditional information(UN RTDG)				
UN number	1245			
Class	3			
Packing group	Ш			
Danger label(s)	3			
Special provisions (SP)	- UN RTDG			
Excepted quantities (EQ)	E2 UN RTDG			
Limited quantities (LQ)	1 L UN RTDG			
Emergency Action Code	3YE			
International Maritime Dangerous Goods Code	e (IMDG) - Additional information			
Proper shipping name	METHYL ISOBUTYL KETONE			
Particulars in the shipper's declaration	UN1245, METHYL ISOBUTYL KETONE, 3, II, 14°C c.c.			
Marine pollutant	-			
Danger label(s)	3			
Special provisions (SP)	-			
Excepted quantities (EQ)	E2			
Limited quantities (LQ)	1 L			
EmS	F-E, S-D			
Stowage category	В			
International Civil Aviation Organization (ICAC	O-IATA/DGR) - Additional information			
Proper shipping name	Methyl isobutyl ketone			
Particulars in the shipper's declaration	UN1245, Methyl isobutyl ketone, 3, II			
Danger label(s)	3			
Excepted quantities (EQ)	E2			

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture There is no additional information.

There is no additional information

National regulations(Australia)

Australian Inventory of Chemical Substances(AICS)

Substance is listed.

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Country	Inventory	Status
AU	AIIC	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed (ACTIVE)
VN	NCI	substance is listed

National inventories

Legend

AIIC Australian Inventory of Industrial Chemicals CICR Chemical Inventory and Control Regulation CSCL-ENCS List of Existing and New Chemical Substances (CSCL-ENCS) DSL Domestic Substances List (DSL) ECSI EC Substance Inventory (EINECS, ELINCS, NLP) IECSC Inventory of Existing Chemical Substances Produced or Imported in China INSQ National Inventory of Chemical Substances KECI Korea Existing Chemicals Inventory NCI National Chemical Inventory NCI National Chemical Inventory NZIOC New Zealand Inventory of Chemicals PICCS Philippine Inventory of Chemicals and Chemical Substances (PICCS) REACH Reg. REACH registered substances TCSI Taiwan Chemical Substance Inventory TSCA Toxic Substance Control Act

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

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SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety- relev- ant
2.1		Supplemental hazard information: change in the listing (table)	yes
2.2		Supplemental hazard information: change in the listing (table)	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.	yes
14.8		Emergency Action Code: 3YE	yes
15.1		National inventories: change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
ED	Endocrine disruptor
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Na- tions
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LEL	Lower explosion limit (LEL)
NLP	No-Longer Polymer

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Abbr.	Descriptions of used abbreviations
РВТ	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
STEL	Short-term exposure limit
TWA	Time-weighted average
UEL	Upper explosion limit (UEL)
UN RTDG	UN Recommendations on the Transport of Dangerous Good
vPvB	Very Persistent and very Bioaccumulative
WES	Safe Work Australia: Workplace exposure standards for airborne contaminants

Key literature references and sources for data

Safe Work Australia's Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.