Conforms to Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals

SAFETY DATA SHEET

Agilent Technologies

QUALITATIVE - PEAK ID MIX ASTM-D4815, Part Number 8500-8434

Section 1. Identification

Product identifier : QUALITATIVE - PEAK ID MIX ASTM-D4815, Part Number 8500-8434

Part no. : 8500-8434

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

Identified uses : Analytical chemistry.
1 x 1 ml.

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: +(61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture

H225	FLAMMABLE LIQUIDS - Category 2
H302	ACUTE TOXICITY (oral) - Category 4
H332	ACUTE TOXICITY (inhalation) - Category 4
H315	SKIN CORROSION/IRRITATION - Category 2
H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
H340	GERM CELL MUTAGENICITY - Category 1
H350	CARCINOGENICITY - Category 1
H360	REPRODUCTIVE TOXICITY - Category 1
H371	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 2
H335	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3
H373	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
H304	ASPIRATION HAZARD - Category 1

Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 10 - 30%

Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 10 - 30%

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 4%

GHS label elements

Hazard pictograms :

Signal word : DANGER

Section 2. Hazard(s) identification

Hazard statements : H225 - Highly flammable liquid and vapour.
H302 + H332 - Harmful if swallowed or if inhaled.
H304 - May be fatal if swallowed and enters airways.
H315 - Causes skin irritation.
H318 - Causes serious eye damage.
H335 - May cause respiratory irritation.
H336 - May cause drowsiness or dizziness.
H340 - May cause genetic defects.
H350 - May cause cancer.
H360 - May damage fertility or the unborn child.
H371 - May cause damage to organs. (central nervous system (CNS), optic nerve)
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing and eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : P308 + P313 - IF exposed or concerned: Get medical advice or attention.

Storage : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

Additional warning phrases : Not applicable.

Other hazards which do not result in classification : None known.

Section 3. Composition and ingredient information

Substance/mixture : Mixture

CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
Propan-2-ol	≤10	67-63-0
Ethanol	≤10	64-17-5
Butan-1-ol	≤10	71-36-3
Propan-1-ol	≤10	71-23-8
Butan-2-ol	≤10	78-92-2
2-Mmethylpropan-1-ol	≤10	78-83-1
2-Methylbutan-2-ol	≤8.4	75-85-4
2-Methylpropan-2-ol	≤10	75-65-0
Methanol	≤8.4	67-56-1
2-methoxy-2-methylbutane	≤10	994-05-8
1,2-Dimethoxyethane	≤6.9	110-71-4
benzene	<10	71-43-2
tert-Butyl methyl ether	≤5	1634-04-4
methylcyclopentane	≤5	96-37-7

Section 3. Composition and ingredient information

2-Ethoxy-2-methylpropane	≤5	637-92-3
Diisopropyl ether	≤5	108-20-3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : Harmful if inhaled. May cause damage to organs following a single exposure if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : May cause damage to organs following a single exposure in contact with skin. Causes skin irritation.

Ingestion : Harmful if swallowed. May cause damage to organs following a single exposure if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Section 4. First aid measures

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
stomach pains
nausea or vomiting
reduced foetal weight
increase in foetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
Formaldehyde.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Section 5. Firefighting measures

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Hazchem code : •3YE

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not swallow. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Propan-2-ol	**Safe Work Australia (Australia, 10/2022).** STEL: 1230 mg/m³ 15 minutes. STEL: 500 ppm 15 minutes. TWA: 983 mg/m³ 8 hours. TWA: 400 ppm 8 hours.
Ethanol	**Safe Work Australia (Australia, 10/2022).** TWA: 1880 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.
Butan-1-ol	**Safe Work Australia (Australia, 10/2022).** **Absorbed through skin.** PEAK: 50 ppm PEAK: 152 mg/m³
Propan-1-ol	**Safe Work Australia (Australia, 10/2022).** **Absorbed through skin.** STEL: 614 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 492 mg/m³ 8 hours. TWA: 200 ppm 8 hours.
Butan-2-ol	**Safe Work Australia (Australia, 10/2022).** TWA: 303 mg/m³ 8 hours. TWA: 100 ppm 8 hours.
2-Mmethylpropan-1-ol	**Safe Work Australia (Australia, 10/2022).** TWA: 152 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
2-Methylbutan-2-ol	**DFG MAC-values list (Germany, 7/2023).** PEAK: 146 mg/m³, 4 times per shift, 15 minutes. PEAK: 40 ppm, 4 times per shift, 15 minutes. TWA: 73 mg/m³ 8 hours. TWA: 20 ppm 8 hours.
2-Methylpropan-2-ol	**Safe Work Australia (Australia, 10/2022).** STEL: 455 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 303 mg/m³ 8 hours. TWA: 100 ppm 8 hours.
Methanol	**Safe Work Australia (Australia, 10/2022).** **Absorbed through skin.** STEL: 328 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m³ 8 hours. TWA: 200 ppm 8 hours.
2-methoxy-2-methylbutane	**ACGIH TLV (United States, 1/2023).** TWA: 20 ppm 8 hours.
benzene	**Safe Work Australia (Australia, 10/2022).** TWA: 3.2 mg/m³ 8 hours. TWA: 1 ppm 8 hours.
tert-Butyl methyl ether	**Safe Work Australia (Australia, 10/2022).** TWA: 25 ppm 8 hours. TWA: 92 mg/m³ 8 hours. STEL: 75 ppm 15 minutes. STEL: 275 mg/m³ 15 minutes.
methylcyclopentane	**DFG MAC-values list (Germany, 7/2023).** **[Hexane]** TWA: 500 ppm 8 hours. PEAK: 1000 ppm, 4 times per shift, 15

Section 8. Exposure controls and personal protection

	minutes. TWA: 1800 mg/m³ 8 hours. PEAK: 3600 mg/m³, 4 times per shift, 15 minutes.
2-Ethoxy-2-methylpropane	**ACGIH TLV (United States, 1/2023).** TWA: 25 ppm 8 hours.
Diisopropyl ether	**Safe Work Australia (Australia, 10/2022).** STEL: 1300 mg/m³ 15 minutes. STEL: 310 ppm 15 minutes. TWA: 1040 mg/m³ 8 hours. TWA: 250 ppm 8 hours.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Liquid.

Colour : Clear. / Colourless.

Odour : Not available.

Odour threshold : Not available.

pH : Not available.

Melting point/freezing point : -98°C (-144.4°F)

Boiling point, initial boiling point, and boiling range : 65°C (149°F)

Flash point : Closed cup: 10°C (50°F)

Evaporation rate : >1 (butyl acetate = 1)

Flammability : Not applicable

Lower and upper explosion limit/flammability limit : Lower: 6%
Upper: 36.5%

Vapour pressure : 13.3 kPa (100 mm Hg)

Relative vapour density : 1.1 [Air = 1]

Relative density : 0.79

Density : 0.79 g/cm³

Solubility(ies) :

Media	Result
water	Soluble

Miscible with water : Yes.

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature :

Ingredient name	°C	°F	Method
1,2-Dimethoxyethane	202	395.6	-
methylcyclopentane	257.85	496.1	-

Decomposition temperature : Not available.

Viscosity : Not available.

Particle characteristics

Median particle size : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.

Incompatible materials : Reactive or incompatible with the following materials:
oxidising materials
Reactive or incompatible with the following materials: metals and acids.

Section 10. Stability and reactivity

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Propan-2-ol	LD50 Dermal	Rabbit	12800 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
Ethanol	LC50 Inhalation Vapour	Rat	124700 mg/m³	4 hours
	LD50 Oral	Rat	7 g/kg	-
Butan-1-ol	LC50 Inhalation Vapour	Rat	24000 mg/m³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	790 mg/kg	-
Propan-1-ol	LC50 Inhalation Vapour	Rat - Male, Female	>33.8 mg/l	4 hours
	LD50 Dermal	Rabbit	5040 mg/kg	-
Butan-2-ol	LC50 Inhalation Vapour	Rat	48500 mg/m³	4 hours
	LC50 Inhalation Vapour	Rat	8000 ppm	4 hours
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat	2054 mg/kg	-
2-Mmethylpropan-1-ol	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
2-Methylpropan-2-ol	LC50 Inhalation Gas.	Rat	14100 ppm	4 hours
	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg non-toxic.	-
	LD50 Oral	Rat	2733 mg/kg	-
Methanol	LC50 Inhalation Vapour	Rat	189.95 mg/l	1 hours
	LC50 Inhalation Vapour	Rat	145000 ppm	1 hours
	LC50 Inhalation Vapour	Rat	83.84 mg/l	4 hours
	LC50 Inhalation Vapour	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
2-methoxy-2-methylbutane	LD50 Oral	Rat	1602 mg/kg	-
1,2-Dimethoxyethane	LD50 Dermal	Rabbit	2000 mg/kg	-
	LD50 Oral	Rat	775 mg/kg	-
tert-Butyl methyl ether	LC50 Inhalation Vapour	Rat	41000 mg/m³	4 hours
	LC50 Inhalation Vapour	Rat	23576 ppm	4 hours
	LD50 Oral	Rat	4 g/kg	-
2-Ethoxy-2-methylpropane	LC50 Inhalation Vapour	Rat	36200 mg/m³	4 hours
	LD50 Oral	Rat	7150 mg/kg	-
Diisopropyl ether	LD50 Oral	Rat	4.5 g/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Propan-2-ol	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
Ethanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Eyes - Moderate irritant	Rabbit	-	0.066666667 minutes 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	100 uL	-
Butan-1-ol	Eyes - Severe irritant	Rabbit	-	0.005 Ml	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20	-

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				mg	
Propan-1-ol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
Butan-2-ol	Eyes - Severe irritant	Rabbit	-	0.1 Ml	-
2-Methylpropan-2-ol	Eyes - Severe irritant	Rabbit	-	24 hours 100 uL	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 uL	-
Methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	40 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
2-methoxy-2-methylbutane	Eyes - Severe irritant	Rabbit	-	24 hours 100 uL	-
	Skin - Severe irritant	Rabbit	-	4 hours 500 uL	-
benzene	Eyes - Moderate irritant	Rabbit	-	88 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 mg	-
	Skin - Mild irritant	Rat	-	8 hours 60 uL	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
2-Ethoxy-2-methylpropane	Eyes - Moderate irritant	Rabbit	-	24 hours 100 uL	-
	Skin - Moderate irritant	Rabbit	-	4 hours 500 uL	-
Diisopropyl ether	Skin - Mild irritant	Rabbit	-	363 mg	-

Conclusion/Summary

Skin : Repeated exposure may cause skin dryness or cracking.

Eyes : May cause eye irritation.

Sensitisation

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Repeated or prolonged exposure to the substance can produce reproductive system damage.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Propan-2-ol	Category 3	-	Narcotic effects
Butan-1-ol	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
Propan-1-ol	Category 3	-	Narcotic effects
Butan-2-ol	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
2-Mmethylpropan-1-ol	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
2-Methylbutan-2-ol	Category 3	-	Respiratory tract

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			irritation
	Category 3		Narcotic effects
2-Methylpropan-2-ol	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
Methanol	Category 1	-	central nervous system (CNS), optic nerve
2-methoxy-2-methylbutane	Category 3	-	Narcotic effects
methylcyclopentane	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
2-Ethoxy-2-methylpropane	Category 3	-	Narcotic effects
Diisopropyl ether	Category 3	-	Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
benzene	Category 1	-	-

Aspiration hazard

Name	Result
QUALITATIVE - PEAK ID MIX ASTM-D4815, Part Number 8500-8434	ASPIRATION HAZARD - Category 1
benzene	ASPIRATION HAZARD - Category 1
methylcyclopentane	ASPIRATION HAZARD - Category 1

Information on likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : Harmful if inhaled. May cause damage to organs following a single exposure if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : May cause damage to organs following a single exposure in contact with skin. Causes skin irritation.

Ingestion : Harmful if swallowed. May cause damage to organs following a single exposure if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced foetal weight
increase in foetal deaths
skeletal malformations

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Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
stomach pains
nausea or vomiting
reduced foetal weight
increase in foetal deaths
skeletal malformations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : May cause genetic defects.

Reproductive toxicity : May damage fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
QUALITATIVE - PEAK ID MIX ASTM-D4815, Part Number 8500-8434	808.1	2325.6	139841.1	19.9	N/A
Propan-2-ol	5000	12800	N/A	72.2	N/A
Ethanol	7000	N/A	N/A	124.7	N/A
Butan-1-ol	790	3400	N/A	24	N/A
Propan-1-ol	N/A	5040	N/A	N/A	N/A
Butan-2-ol	2054	N/A	N/A	48.5	N/A
2-Mmethylpropan-1-ol	2460	3400	N/A	N/A	N/A
2-Methylbutan-2-ol	N/A	1100	N/A	11	N/A
2-Methylpropan-2-ol	2733	N/A	14100	N/A	N/A
Methanol	100	300	N/A	3	N/A
2-methoxy-2-methylbutane	1602	N/A	N/A	N/A	N/A
1,2-Dimethoxyethane	775	2000	N/A	11	N/A
tert-Butyl methyl ether	4000	N/A	N/A	41	N/A
2-Ethoxy-2-methylpropane	7150	N/A	N/A	36.2	N/A
Diisopropyl ether	4500	N/A	N/A	N/A	N/A

Section 11. Toxicological information

Other information : Adverse symptoms may include the following: blurred or double vision Eye contact can result in corneal damage or blindness. Repeated or prolonged exposure to the substance can produce liver damage. Narcotic effect. May cause nervous system disturbances.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Propan-2-ol	Acute EC50 7550 mg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	48 hours
	Acute LC50 1400000 µg/l Marine water	Crustaceans - *Crangon crangon*	48 hours
	Acute LC50 4200 mg/l Fresh water	Fish - *Rasbora heteromorpha*	96 hours
Ethanol	Acute EC50 3306 mg/l Marine water	Algae - *Ulva pertusa*	96 hours
	Acute EC50 1074 mg/l Fresh water	Crustaceans - *Cypris subglobosa*	48 hours
	Acute EC50 2 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 11000000 µg/l Marine water	Fish - *Alburnus alburnus*	96 hours
	Chronic NOEC 4.995 mg/l Marine water	Algae - *Ulva pertusa*	96 hours
	Chronic NOEC 100 ul/L Fresh water	Daphnia - *Daphnia magna* - Neonate	21 days
Butan-1-ol	Acute EC50 225 mg/l Fresh water	Algae - *Pseudokirchneriella subcapitata*	96 hours
	Acute EC50 1983 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 1730000 µg/l Fresh water	Fish - *Pimephales promelas*	96 hours
	Acute NOEC 415 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours Static
	Acute NOEC 519 mg/l Fresh water	Fish - *Pimephales promelas*	96 hours Static
Propan-1-ol	Acute EC50 4480000 µg/l Fresh water	Algae - *Selenastrum sp.*	96 hours
	Acute LC50 1000000 µg/l Fresh water	Crustaceans - *Gammarus pulex*	48 hours
	Acute LC50 2950000 µg/l Fresh water	Daphnia - *Daphnia pulex*	48 hours
	Acute LC50 3800000 µg/l Marine water	Fish - *Alburnus alburnus*	96 hours
Butan-2-ol	Acute EC50 4227 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 3670000 µg/l Fresh water	Fish - *Pimephales promelas*	96 hours
2-Mmethylpropan-1-ol	Acute LC50 600 mg/l Marine water	Crustaceans - *Artemia salina*	48 hours
	Acute LC50 1030000 µg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	48 hours
	Acute LC50 1330000 µg/l Fresh water	Fish - *Oncorhynchus mykiss*	96 hours
	Chronic NOEC 4 mg/l Fresh water	Daphnia - *Daphnia magna*	21 days
2-Methylbutan-2-ol	Acute LC50 450 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
2-Methylpropan-2-ol	Acute EC50 >976 mg/l Fresh water	Algae	72 hours
	Acute EC50 5504 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 6410000 µg/l Fresh water	Fish - *Pimephales promelas*	96 hours
	Chronic NOEC 100 mg/l Fresh water	Daphnia	21 days
Methanol	Acute EC50 2736 mg/l Marine water	Algae - *Ulva pertusa*	96 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - *Crangon crangon* - Adult	48 hours
	Acute LC50 3289 mg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	48 hours
	Acute LC50 290 mg/l Fresh water	Fish - *Danio rerio* - Egg	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - *Ulva pertusa*	96 hours
2-methoxy-2-methylbutane	Acute EC50 230 mg/l Fresh water	Algae	72 hours
	Acute EC50 >100000 µg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 >100000 µg/l Fresh water	Fish - *Oncorhynchus mykiss*	96 hours
	Acute NOEC 77 mg/l Fresh water	Algae	72 hours
	Chronic NOEC 3.39 mg/l	Crustaceans	28 days
1,2-Dimethoxyethane	Acute EC50 9120 mg/l Fresh water	Algae - *Pseudokirchneriella subcapitata*	72 hours
	Acute EC50 4000 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
benzene	Acute EC50 1600000 µg/l Fresh water	Algae - *Selenastrum sp.*	96 hours

Section 12. Ecological information

	Acute EC50 9.23 mg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	48 hours
	Acute LC50 21 mg/l Marine water	Crustaceans - *Artemia salina*	48 hours
	Acute LC50 5.28 ul/L Fresh water	Fish - *Oncorhynchus gorbuscha* - Fry	96 hours
	Chronic EC10 >1360 mg/l Fresh water	Algae - *Desmodesmus subspicatus*	96 hours
	Chronic NOEC 98 mg/l Fresh water	Daphnia - *Daphnia magna*	21 days
	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - *Morone saxatilis* - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
tert-Butyl methyl ether	Acute EC50 472 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 672000 µg/l Fresh water	Fish - *Pimephales promelas*	96 hours
	Chronic NOEC 26 mg/l Marine water	Daphnia	28 days
	Chronic NOEC 3.04 mg/l Fresh water	Fish	21 days
2-Ethoxy-2-methylpropane	Acute EC50 1100 mg/l Fresh water	Algae - *Pseudokircheriella subcapitata*	72 hours
	Acute NOEC 7.5 mg/l Fresh water	Algae - *Pseudokinchneriella subcapitata*	72 hours
Diisopropyl ether	Acute EC50 190 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 91700 µg/l Fresh water	Fish - *Pimephales promelas*	96 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2-Methylbutan-2-ol	OECD 310 Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test)	40 to 50 % - Inherent - 28 days	-	-
2-Methylpropan-2-ol	OECD 301B Ready Biodegradability - CO2 Evolution Test	2.6 to 5.1 % - Not readily - 29 days	ThCO₂	-
2-methoxy-2-methylbutane	OECD 301D Ready Biodegradability - Closed Bottle Test	4 % - Readily - 28 days	-	-
1,2-Dimethoxyethane	OECD 302B Inherent Biodegradability: Zahn-Wellens/ EMPA Test	16 % - Not readily - 28 days	95 mg/l	Activated sludge
tert-Butyl methyl ether	OECD 301D Ready Biodegradability - Closed Bottle Test	0 % - Not readily - 28 days	-	Activated sludge
methylcyclopentane	OECD 301C Ready Biodegradability - Modified MITI Test (I)	93 to 94 % - Readily - 28 days	-	-
Diisopropyl ether	OECD 301D Ready Biodegradability - Closed Bottle Test	0 % - Not readily - 28 days	-	-

Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Propan-2-ol	-	-	Readily
Ethanol	-	-	Readily
Butan-1-ol	-	-	Readily
Propan-1-ol	-	-	Readily
Butan-2-ol	-	-	Readily
2-Mmethylpropan-1-ol	-	-	Readily
2-Methylbutan-2-ol	-	-	Inherent
Methanol	-	-	Readily
2-methoxy-2-methylbutane	-	-	Not readily
1,2-Dimethoxyethane	-	-	Not readily
benzene	-	-	Readily
tert-Butyl methyl ether	-	50%; 3.2 day(s)	Not readily
methylcyclopentane	-	-	Readily
Diisopropyl ether	-	-	Not readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Propan-2-ol	0.05	-	Low
Ethanol	-0.35	0.5	Low
Butan-1-ol	1	-	Low
Propan-1-ol	0.2	-	Low
Butan-2-ol	0.61	-	Low
2-Mmethylpropan-1-ol	1	3	Low
2-Methylbutan-2-ol	0.89	-	Low
2-Methylpropan-2-ol	0.317	5.01	Low
Methanol	-0.77	<10	Low
2-methoxy-2-methylbutane	1.55	-	Low
1,2-Dimethoxyethane	-0.21	-	Low
benzene	2.13	11	Low
tert-Butyl methyl ether	1.04	1.5	Low
methylcyclopentane	3.37	-	Low
2-Ethoxy-2-methylpropane	1.48	-	Low
Diisopropyl ether	2.4	-	Low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code .

Additional information

Remarks: De minimis quantities

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

6, 5

Model Work Health and Safety Regulations - Scheduled Substances

Ingredient name	Schedule
Methanol	Restricted hazardous chemical [For spray painting if the substance contains more than 1% by volume]
benzene	Restricted carcinogen [All uses involving benzene as a feedstock containing more than 50% of benzene by volume; Restricted use - Genuine research or analysis; For spray painting if the substance contains more than 1% by volume]

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

New Zealand : Not determined.

United States : All components are active or exempted.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 03/04/2024

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Section 16. Any other relevant information

Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1	Calculation method
GERM CELL MUTAGENICITY - Category 1	Calculation method
CARCINOGENICITY - Category 1	Calculation method
REPRODUCTIVE TOXICITY - Category 1	Calculation method
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2	Calculation method
ASPIRATION HAZARD - Category 1	Expert judgment

Indicates information that has changed from previously issued version.

Notice to reader

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