

SAFETY DATA SHEET

Test Mixture 14 GASOH, Part Number CP734420

Section 1. Identification

Product identifier : Test Mixture 14 GASOH, Part Number CP734420

Part no. : CP734420

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

Material uses : Reagents and Standards for Analytical Chemistry Laboratory Use
5 ml vials

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
H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
H340	GERM CELL MUTAGENICITY - Category 1B
H350	CARCINOGENICITY - Category 1A
H371	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3
H304	ASPIRATION HAZARD - Category 1
H402	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 3
H411	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2

GHS label elements

Hazard pictograms :



Signal word : DANGER

Hazard statements :

- H225 - Highly flammable liquid and vapour.
- H318 - Causes serious eye damage.
- H340 - May cause genetic defects.
- H350 - May cause cancer.
- H304 - May be fatal if swallowed and enters airways.
- H371 - May cause damage to organs.
- H336 - May cause drowsiness or dizziness.
- H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Section 2. Hazard(s) identification

- Prevention** :
- P201 - Obtain special instructions before use.
 - P202 - Do not handle until all safety precautions have been read and understood.
 - P281 - Use personal protective equipment as required.
 - P280 - Wear protective gloves. Wear eye or face protection.
 - P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
 - P242 - Use only non-sparking tools.
 - P243 - Take precautionary measures against static discharge.
 - P233 - Keep container tightly closed.
 - P271 - Use only outdoors or in a well-ventilated area.
 - P273 - Avoid release to the environment.
 - P260 - Do not breathe vapour.
 - P270 - Do not eat, drink or smoke when using this product.
 - P264 - Wash hands thoroughly after handling.
- Response** :
- P391 - Collect spillage.
 - P309 + P311 - IF exposed or if you feel unwell: Call a POISON CENTER or physician.
 - P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
 - P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
 - P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
 - P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
- Storage** :
- P405 - Store locked up.
 - P403 - Store in a well-ventilated place.
 - P235 - Keep cool.
- 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
Pentane	≥75 - ≤90	109-66-0
Methanol	≤3	67-56-1
Butanone	≤3	78-93-3
Propan-2-ol	≤3	67-63-0
2-methoxy-2-methylbutane	≤2.3	994-05-8
Ethanol	≤3	64-17-5
2-Mmethylpropan-1-ol	≤3	78-83-1
Propan-1-ol	≤3	71-23-8
tert-Butyl methyl ether	≤3	1634-04-4
Butan-1-ol	≤2	71-36-3
2-Methylpropan-2-ol	≤3	75-65-0
Butan-2-ol	≤3	78-92-2

Section 3. Composition and ingredient information

benzene	<1	71-43-2
Cyclohexane	<1	110-82-7

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

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. Wash skin thoroughly with soap and water or use recognised skin cleanser. 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. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : 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:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains
nausea or vomiting

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, CO₂, 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. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- 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.

- 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 spilled material. Shut off all ignition sources. No flames, 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 spilled 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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

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. 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. Avoid release to the environment. 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 oxidizing 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
Pentane	Safe Work Australia (Australia, 1/2014). STEL: 2210 mg/m ³ 15 minutes. STEL: 750 ppm 15 minutes. TWA: 1770 mg/m ³ 8 hours. TWA: 600 ppm 8 hours.
Methanol	Safe Work Australia (Australia, 1/2014). Absorbed through skin. STEL: 328 mg/m ³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m ³ 8 hours. TWA: 200 ppm 8 hours.
Butanone	Safe Work Australia (Australia, 1/2014). STEL: 890 mg/m ³ 15 minutes. STEL: 300 ppm 15 minutes. TWA: 445 mg/m ³ 8 hours. TWA: 150 ppm 8 hours.
Propan-2-ol	Safe Work Australia (Australia, 1/2014). STEL: 1230 mg/m ³ 15 minutes. STEL: 500 ppm 15 minutes. TWA: 983 mg/m ³ 8 hours. TWA: 400 ppm 8 hours.
2-methoxy-2-methylbutane	ACGIH TLV (United States, 3/2017). TWA: 20 ppm 8 hours.
Ethanol	Safe Work Australia (Australia, 1/2014). TWA: 1880 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours.
2-Mmethylpropan-1-ol	Safe Work Australia (Australia, 1/2014). TWA: 152 mg/m ³ 8 hours. TWA: 50 ppm 8 hours.
Propan-1-ol	Safe Work Australia (Australia, 1/2014). Absorbed through skin. STEL: 614 mg/m ³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 492 mg/m ³ 8 hours. TWA: 200 ppm 8 hours.
tert-Butyl methyl ether	Safe Work Australia (Australia, 1/2014). TWA: 25 ppm 8 hours. TWA: 92 mg/m ³ 8 hours. STEL: 75 ppm 15 minutes. STEL: 275 mg/m ³ 15 minutes.
Butan-1-ol	Safe Work Australia (Australia, 1/2014). Absorbed through skin. TWA: 50 ppm 8 hours. TWA: 152 mg/m ³ 8 hours.
2-Methylpropan-2-ol	Safe Work Australia (Australia, 1/2014). STEL: 455 mg/m ³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 303 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
Butan-2-ol	Safe Work Australia (Australia, 1/2014). TWA: 303 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
benzene	Safe Work Australia (Australia, 1/2014). TWA: 3.2 mg/m ³ 8 hours. TWA: 1 ppm 8 hours.
Cyclohexane	Safe Work Australia (Australia, 1/2014).

Section 8. Exposure controls and personal protection

TWA: 350 mg/m³ 8 hours.
 TWA: 100 ppm 8 hours.
 STEL: 300 ppm 15 minutes.
 STEL: 1050 mg/m³ 15 minutes.

- 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

Appearance

- Physical state** : Liquid. [Clear.]
- Colour** : Colourless.
- Odour** : Characteristic. / Gasoline-like
- Odour threshold** : Not available.
- pH** : Not available.
- Melting point** : -130°C (-202°F)

Section 9. Physical and chemical properties

Boiling point	: 36°C (96.8°F)
Flash point	: Closed cup: -50°C (-58°F)
Evaporation rate	: 28.6 (butyl acetate = 1)
Flammability (solid, gas)	: Not applicable.
Lower and upper explosive (flammable) limits	: Lower: 1.5% Upper: 7.8%
Vapour pressure	: 56.8 kPa (426 mm Hg) [room temperature]
Vapour density	: 2.5 [Air = 1]
Relative density	: 0.63
Solubility	: Very slightly soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: 260°C (500°F)
Decomposition temperature	: Not available.
Viscosity	: Not available.

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: oxidizing materials
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
Pentane	LC50 Inhalation Vapour	Rat	364 g/m ³	4 hours
Methanol	LC50 Inhalation Vapour	Rat	145000 ppm	1 hours
	LC50 Inhalation Vapour	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
Butanone	LD50 Oral	Rat	5600 mg/kg	-
	LC50 Inhalation Gas.	Rat	11243 ppm	4 hours
	LD50 Dermal	Rabbit	6480 mg/kg	-
Propan-2-ol	LD50 Oral	Rat	2737 mg/kg	-
	LD50 Dermal	Rabbit	12800 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
2-methoxy-2-methylbutane	LD50 Oral	Rat	1602 mg/kg	-
	LC50 Inhalation Vapour	Rat	124700 mg/m ³	4 hours
Ethanol	LD50 Oral	Rat	7 g/kg	-
	LC50 Inhalation Vapour	Rat	19200 mg/m ³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
2-Mmethylpropan-1-ol	LD50 Oral	Rat	2460 mg/kg	-

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Propan-1-ol	LC50 Inhalation Vapour	Rat - Male, Female	>33.8 mg/l	4 hours
	LD50 Dermal	Rabbit	5040 mg/kg	-
	LD50 Oral	Rat	1870 mg/kg	-
tert-Butyl methyl ether	LC50 Inhalation Vapour	Rat	41000 mg/m ³	4 hours
	LC50 Inhalation Vapour	Rat	23576 ppm	4 hours
	LD50 Oral	Rat	4 g/kg	-
Butan-1-ol	LC50 Inhalation Vapour	Rat	24000 mg/m ³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	790 mg/kg	-
2-Methylpropan-2-ol	LC50 Inhalation Vapour	Rat	14100 ppm	4 hours
	LD50 Oral	Rat	2733 mg/kg	-
Butan-2-ol	LC50 Inhalation Vapour	Rat	48500 mg/m ³	4 hours
	LC50 Inhalation Vapour	Rat	8000 ppm	4 hours
	LD50 Oral	Rat	2054 mg/kg	-
benzene	LC50 Inhalation Vapour	Rat	13700 ppm	4 hours
	LD50 Oral	Rat	930 mg/kg	-
Cyclohexane	LC50 Inhalation Vapour	Rat - Male, Female	>32880 mg/m ³	4 hours
	LD50 Oral	Rat	6240 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	40 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
Butanone	Skin - Mild irritant	Rabbit	-	24 hours 14 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
Propan-2-ol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
2-methoxy-2-methylbutane	Eyes - Severe irritant	Rabbit	-	24 hours 100 microliters	-
	Skin - Severe irritant	Rabbit	-	4 hours 500 microliters	-
Ethanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	0.06666667 minutes 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Skin - Mild irritant	Rabbit	-	400 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
Propan-1-ol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
Butan-1-ol	Eyes - Severe irritant	Rabbit	-	0.005 Milliliters	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
2-Methylpropan-2-ol	Eyes - Severe irritant	Rabbit	-	24 hours 100 milligrams	-

Section 11. Toxicological information

Butan-2-ol benzene	Skin - Mild irritant	Rabbit	-	microliters 24 hours 500	-
	Eyes - Severe irritant	Rabbit	-	microliters 0.1 Milliliters	-
	Eyes - Moderate irritant	Rabbit	-	88 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-

Conclusion/Summary

Skin : Repeated exposure may cause skin dryness or cracking.

Sensitisation

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Pentane Methanol Butanone	Category 3 Category 1 Category 3	Not applicable. Not determined Not applicable.	Narcotic effects Not determined Respiratory tract irritation and Narcotic effects
Propan-2-ol 2-methoxy-2-methylbutane 2-Mmethylpropan-1-ol	Category 3 Category 3 Category 3	Not applicable. Not applicable. Not applicable.	Narcotic effects Narcotic effects Respiratory tract irritation and Narcotic effects
Propan-1-ol Butan-1-ol	Category 3 Category 3	Not applicable. Not applicable.	Narcotic effects Respiratory tract irritation and Narcotic effects
2-Methylpropan-2-ol	Category 3	Not applicable.	Respiratory tract irritation
Butan-2-ol	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Cyclohexane	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
benzene	Category 1	Not determined	Not determined

Aspiration hazard

Section 11. Toxicological information

Name	Result
Test Mixture 14 GASOH, Part Number CP734420	ASPIRATION HAZARD - Category 1
pentane	ASPIRATION HAZARD - Category 1
benzene	ASPIRATION HAZARD - Category 1
Cyclohexane	ASPIRATION HAZARD - Category 1

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

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : 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:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains
nausea or vomiting

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** : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : May cause genetic defects.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Section 11. Toxicological information

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	3621 mg/kg
Dermal	11811 mg/kg
Inhalation (vapours)	105.6 mg/l

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.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Methanol	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
Butanone	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
	Acute EC50 >500000 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute EC50 5091000 µg/l Fresh water	Daphnia - Daphnia magna - Larvae	48 hours
Propan-2-ol	Acute LC50 3220000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 10100 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1400000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
2-methoxy-2-methylbutane	Acute LC50 4200 mg/l Fresh water	Fish - Rasbora heteromorpha	96 hours
	Acute EC50 >100000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	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
Ethanol	Chronic NOEC 100000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
2-Mmethylpropan-1-ol	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 100 µl/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC 0.375 µl/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
Propan-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
tert-Butyl methyl ether	Chronic NOEC 4000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	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
tert-Butyl methyl ether	Acute LC50 3800000 µg/l Marine water	Fish - Alburnus alburnus	96 hours
	Acute EC50 472 mg/l Fresh water	Daphnia	48 hours
	Acute IC50 491 mg/l Fresh water	Algae	72 hours
	Acute LC50 672000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
tert-Butyl methyl ether	Chronic NOEC 26 mg/l Marine water	Daphnia	28 days
	Chronic NOEC 3.04 mg/l Fresh water	Fish	21 days

Section 12. Ecological information

Butan-1-ol	Acute EC50 1983000 µg/l Fresh water Acute LC50 225 mg/l Fresh water	Daphnia - Daphnia magna Algae	48 hours 96 hours
2-Methylpropan-2-ol	Acute LC50 1730000 µg/l Fresh water Acute EC50 5504000 µg/l Fresh water Acute LC50 6410000 µg/l Fresh water	Fish - Pimephales promelas Daphnia - Daphnia magna Fish - Pimephales promelas	96 hours 48 hours 96 hours
Butan-2-ol	Acute EC50 4227000 µg/l Fresh water Acute LC50 3670000 µg/l Fresh water	Daphnia - Daphnia magna Fish - Pimephales promelas	48 hours 96 hours
benzene	Acute EC50 29000 µg/l Fresh water Acute EC50 1600000 µg/l Fresh water Acute EC50 9230 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata Algae - Selenastrum sp. Daphnia - Daphnia magna - Neonate	72 hours 96 hours 48 hours
	Acute LC50 21 mg/l Marine water Acute LC50 5.28 ul/L Fresh water	Crustaceans - Artemia salina Fish - Oncorhynchus gorboscha - Fry	48 hours 96 hours
	Chronic NOEC 98 mg/l Fresh water Chronic NOEC 1.5 to 5.4 ul/L Marine water	Daphnia - Daphnia magna Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	21 days 4 weeks
Cyclohexane	Acute LC50 4530 µg/l Fresh water	Fish - Pimephales promelas	96 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2-Methylpropan-2-ol	301E Ready Biodegradability - Modified OECD Screening Test	43 % - 28 days	-	-
benzene	301C Ready Biodegradability - Modified MITI Test (I)	100 % - 14 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Propan-2-ol	-	-	Readily
Ethanol	-	-	Readily
2-Mmethylpropan-1-ol	-	-	Readily
Propan-1-ol	-	-	Readily
tert-Butyl methyl ether	-	50%; 3.2 day(s)	-
Butan-1-ol	-	-	Readily
2-Methylpropan-2-ol	-	-	Inherent
Butan-2-ol	-	-	Readily
benzene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
pentane	3.45	171	low
Methanol	-0.77	<10	low
Butanone	0.3	-	low
Propan-2-ol	0.05	-	low
2-methoxy-2-methylbutane	1.55	-	low
Ethanol	-0.35	0.5	low
2-Mmethylpropan-1-ol	1	3	low
Propan-1-ol	0.2	-	low
tert-Butyl methyl ether	1.04	1.5	low
Butan-1-ol	1	-	low
2-Methylpropan-2-ol	0.317	5.01	low
Butan-2-ol	0.61	-	low
benzene	2.13	11	low
Cyclohexane	3.44	167	low

Section 12. Ecological information

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
UN number	UN1993	UN1993	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (pentane, Methanol)	FLAMMABLE LIQUID, N.O.S. (pentane, Methanol)	Flammable liquid, n.o.s. (pentane, Methanol)
Transport hazard class(es)	3 	3 	3 
Packing group	II	II	II
Environmental hazards	No.	No.	No.

Additional information

Remarks: Excepted Quantity

ADG : **Hazchem code** •3YE
Special provisions 274

IMDG : **Emergency schedules** F-E, _S-E_
Special provisions 274

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: 5 L. Packaging instructions: 353. Cargo Aircraft Only: 60 L. Packaging instructions: 364. Limited Quantities - Passenger Aircraft: 1 L. Packaging instructions: Y341.
Special provisions A3

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.

Section 14. Transport information

Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

Section 15. Regulatory information

Standard Uniform Schedule of Medicine and Poisons

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Model Work Health and Safety Regulations - Scheduled Substances

<u>Ingredient name</u>	<u>Schedule</u>
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]
methanol	Restricted hazardous chemical [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 (Annexes A, B, C, E)

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	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: Not determined.
Europe	: All components are listed or exempted.
Japan	: Japan inventory (ENCS) : Not determined. Japan inventory (ISHL) : Not determined.
Malaysia	: Not determined.
New Zealand	: Not determined.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: All components are listed or exempted.
Viet Nam	: Not determined.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 26/03/2018

Date of previous issue : 25/04/2016

Version : 5

Key to abbreviations

ADG = Australian Dangerous Goods
 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)
 NOHSC = National Occupational Health and Safety Commission
 SUSMP = Standard Uniform Schedule of Medicine and Poisons
 UN = United Nations

Procedure used to derive the classification

Classification	Justification
Flam. Liq. 2, H225	On basis of test data
Eye Dam. 1, H318	Calculation method
Muta. 1B, H340	Calculation method
Carc. 1A, H350	Calculation method
STOT SE 2, H371	Calculation method
STOT SE 3, H336	Calculation method
Asp. Tox. 1, H304	Expert judgment
Aquatic Acute 3, H402	Calculation method
Aquatic Chronic 2, H411	Calculation method

References : Not available.

✔ Indicates information that has changed from previously issued version.

Notice to reader

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