

SAFETY DATA SHEET

AFREGELMIX Gasahol Analyzer

Section 1. Identification

Product identifier : AFREGELMIX Gasahol Analyzer

Part no. : CP80262

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

Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use
50 ml

Supplier/Manufacturer : Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

Emergency telephone number (with hours of operation) : CHEMTREC®: 1-800-424-9300

Section 2. Hazard identification

Classification of the substance or mixture

H225 FLAMMABLE LIQUIDS - Category 2
H351 CARCINOGENICITY - Category 2
H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
H304 ASPIRATION HAZARD - Category 1
H411 AQUATIC HAZARD (LONG-TERM) - Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H225 - Highly flammable liquid and vapor.
H304 - May be fatal if swallowed and enters airways.
H336 - May cause drowsiness or dizziness.
H351 - Suspected of causing cancer.
H411 - Toxic to aquatic life with long lasting effects.

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.
P273 - Avoid release to the environment.
P261 - Avoid breathing vapor.

Response

: P391 - Collect spillage.
P308 + P313 - IF exposed or concerned: Get medical advice or attention.
P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.

Storage

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

Section 2. Hazard identification

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

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	Synonyms	% (w/w)	Identifiers	
Pentane	Pentane	≥80	CAS: 109-66-0	-
2-methoxy-2-methylbutane	TAME	≥0.5 - ≤1.5	CAS: 994-05-8	-
tert-Butyl methyl ether	Methyl tert-Butyl Ether	≥0.5 - ≤1.5	CAS: 1634-04-4	-
Heptane	n-Heptane	≥0.5 - ≤1.5	CAS: 142-82-5	-
Cyclohexane	Cyclohexane	≥0.1 - ≤1	CAS: 110-82-7	-

Ranges if listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

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.

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

Section 4. First-aid measures

Description of necessary first aid measures

- Eye contact** : 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. Get medical attention.
- Inhalation** : 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. Get medical attention. If necessary, call a poison center or physician. 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** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. 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. 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 : No known significant effects or critical hazards.

Section 4. First-aid measures

- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : No specific data.
- Ingestion** : Adverse symptoms may include the following:
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.

See toxicological information (Section 11)

Section 5. Fire-fighting 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 vapor. 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 vapor/gas is heavier than air and will spread along the ground. Vapors 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

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. Fire-fighting 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.

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 flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized 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 materials 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 swallow. Avoid breathing vapor or mist. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials

Section 7. Handling and storage

before handling or use.

Section 8. Exposure controls/personal protection

[Control parameters](#)

[Occupational exposure limits](#)

Ingredient name	Exposure limits
pentane	<p>CA Saskatchewan Provincial (Canada, 4/2021) [Pentane] STEL 15 minutes: 750 ppm. TWA 8 hours: 600 ppm.</p> <p>CA British Columbia Provincial (Canada, 9/2024) [pentane, all isomers] TWA 8 hours: 1000 ppm.</p> <p>CA Ontario Provincial (Canada, 6/2019) [Pentane, all isomers] TWA 8 hours: 1000 ppm.</p> <p>CA Quebec Provincial (Canada, 2/2024) [pentane] TWAEV 8 hours: 1000 ppm.</p> <p>CA Alberta Provincial (Canada, 3/2023) [Pentane] OEL 8 hours: 600 ppm. OEL 8 hours: 1770 mg/m³.</p>
2-methoxy-2-methylbutane	<p>CA Saskatchewan Provincial (Canada, 4/2021) STEL 15 minutes: 30 ppm. TWA 8 hours: 20 ppm.</p> <p>CA British Columbia Provincial (Canada, 9/2024) Repr. TWA 8 hours: 20 ppm.</p> <p>CA Ontario Provincial (Canada, 6/2019) TWA 8 hours: 20 ppm.</p> <p>CA Quebec Provincial (Canada, 2/2024) TWAEV 8 hours: 20 ppm.</p>
tert-Butyl methyl ether	<p>CA Saskatchewan Provincial (Canada, 4/2021) STEL 15 minutes: 75 ppm. TWA 8 hours: 50 ppm.</p> <p>CA British Columbia Provincial (Canada, 9/2024) TWA 8 hours: 50 ppm.</p> <p>CA Ontario Provincial (Canada, 6/2019) TWA 8 hours: 40 ppm.</p> <p>CA Quebec Provincial (Canada, 2/2024) TWAEV 8 hours: 40 ppm. TWAEV 8 hours: 144 mg/m³.</p> <p>CA Alberta Provincial (Canada, 3/2023) OEL 8 hours: 180 mg/m³. OEL 8 hours: 50 ppm.</p>
Heptane	<p>CA Saskatchewan Provincial (Canada, 4/2021) STEL 15 minutes: 500 ppm. TWA 8 hours: 400 ppm.</p> <p>CA British Columbia Provincial (Canada, 9/2024) [heptane, isomers]</p>

Section 8. Exposure controls/personal protection

Cyclohexane

TWA 8 hours: 400 ppm.
 STEL 15 minutes: 500 ppm.
CA Ontario Provincial (Canada, 6/2019)
[Heptane, all isomers]
 TWA 8 hours: 400 ppm.
 STEL 15 minutes: 500 ppm.
CA Quebec Provincial (Canada, 2/2024)
[heptane]
 TWAEV 8 hours: 400 ppm.
 STEV 15 minutes: 500 ppm.
CA Alberta Provincial (Canada, 3/2023)
[Heptane]
 OEL 15 minutes: 2050 mg/m³.
 OEL 8 hours: 1640 mg/m³.
 OEL 8 hours: 400 ppm.
 OEL 15 minutes: 500 ppm.

CA Saskatchewan Provincial (Canada, 4/2021)
 STEL 15 minutes: 150 ppm.
 TWA 8 hours: 100 ppm.
CA British Columbia Provincial (Canada, 9/2024)
 TWA 8 hours: 100 ppm.
CA Ontario Provincial (Canada, 6/2019)
 TWA 8 hours: 100 ppm.
CA Quebec Provincial (Canada, 2/2024)
 TWAEV 8 hours: 100 ppm.
CA Alberta Provincial (Canada, 3/2023)
 OEL 8 hours: 344 mg/m³.
 OEL 8 hours: 100 ppm.

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, vapor 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: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal 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

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

Appearance

- Physical state** : Liquid. [Clear.]
- Color** : Colorless.
- Odor** : Characteristic. Gasoline-like
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : -130°C (-202°F)
- Initial boiling point and boiling range** : 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.
- Upper/lower flammability or explosive limits** : Lower: 1.5%
Upper: 7.8%
- Vapor pressure** : 56.8 kPa (426 mm Hg)
- Vapor density** : 2.5 [Air = 1]
- Relative density** : 0.63
- Density** : 0.63 g/cm³
- Solubility** :
- | Media | Result |
|-------|-----------|
| water | Insoluble |
- Miscible with water** : No.
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : 260°C (500°F)
- Decomposition temperature** : Not available.

Section 9. Physical and chemical properties

Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C (104°F)): 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 pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor 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	
Pentane	Rat - Male, Female - Oral - LD50	>2000 mg/kg
	Rat - Inhalation - LC50 Vapor	364 g/m ³ [4 hours]
2-methoxy-2-methylbutane	Rat - Oral - LD50	1602 mg/kg
tert-Butyl methyl ether	Rat - Oral - LD50	4 g/kg
	Rat - Inhalation - LC50 Vapor	23576 ppm [4 hours]
	Rat - Inhalation - LC50 Vapor	41000 mg/m ³ [4 hours]
Heptane	Rat - Inhalation - LC50 Vapor	103 g/m ³ [4 hours]
	Rat - Inhalation - LC50 Vapor	48000 ppm [4 hours]
Cyclohexane	Rat - Oral - LD50	6240 mg/kg
	Rabbit - Dermal - LD50	>5500 mg/kg
	Rat - Male, Female - Inhalation - LC50 Vapor	>32880 mg/m ³ [4 hours]

Conclusion/Summary [Product] : Not available.

Skin corrosion/irritation

Product/ingredient name	Result	
2-methoxy-2-methylbutane	Rabbit - Skin - Severe irritant	Duration of treatment/ exposure: 4 hours Amount/concentration applied: 500 uL

Conclusion/Summary [Product] : Repeated exposure may cause skin dryness or cracking.

Section 11. Toxicological information

Serious eye damage/eye irritation

Product/ingredient name

Result

2-methoxy-2-methylbutane

Rabbit - Eyes - Severe irritant

Duration of treatment/
exposure: 24 hours
Amount/concentration
applied: 100 uL
Amount/concentration
applied: 0.1 MI

Cyclohexane

Rabbit - Eyes - Severe irritant

Conclusion/Summary : Not available.
[Product]

Respiratory corrosion/irritation

Conclusion/Summary : Not available.
[Product]

Respiratory corrosion/irritation

Not available.

Conclusion/Summary : Not available.
[Product]

Respiratory or skin sensitization

Skin

Conclusion/Summary : Not available.
[Product]

Respiratory

Conclusion/Summary : Not available.
[Product]

Germ cell mutagenicity

Conclusion/Summary : Not available.
[Product]

Carcinogenicity

Conclusion/Summary : Not available.
[Product]

Classification

Product/ingredient name	IARC	NTP	ACGIH
tert-Butyl methyl ether	3	-	A3

Reproductive toxicity

Conclusion/Summary : Not available.
[Product]

Specific target organ toxicity (single exposure)

Product/ingredient name

Result

Section 11. Toxicological information

pentane	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
2-methoxy-2-methylbutane	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
tert-Butyl methyl ether	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Heptane	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Cyclohexane	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Product/ingredient name	Result
AFREGELMIX Gasahol Analyzer	ASPIRATION HAZARD - Category 1
pentane	ASPIRATION HAZARD - Category 1
Heptane	ASPIRATION HAZARD - Category 1
Cyclohexane	ASPIRATION HAZARD - Category 1

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

Potential acute health effects

Eye contact	: No known significant effects or critical hazards.
Inhalation	: Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Skin contact	: No known significant effects or critical hazards.
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	: No specific data.
Inhalation	: Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact	: No specific data.
Ingestion	: Adverse symptoms may include the following: nausea or vomiting

Delayed and immediate effects and also chronic effects from short and long term exposure

Section 11. Toxicological information

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

Conclusion/Summary : Not available.

[Product]

General : No known significant effects or critical hazards.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
AFREGELMIX Gasahol Analyzer	2533.5	N/A	N/A	N/A	N/A
pentane	2500	N/A	N/A	364	N/A
2-methoxy-2-methylbutane	1602	N/A	N/A	N/A	N/A
tert-Butyl methyl ether	4000	N/A	N/A	41	N/A
Heptane	N/A	N/A	N/A	103	N/A
Cyclohexane	6240	N/A	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name

Result

2-methoxy-2-methylbutane	Acute - LC50 - Fresh water	>100 mg/l [96 hours]	Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i>
	Acute - EC50 - Fresh water	>100 mg/l [48 hours]	Daphnia - Water flea - <i>Daphnia magna</i>
	Chronic - NOEC	3.39 mg/l [28 days]	Crustaceans
	Acute - NOEC - Fresh water	77 mg/l [72 hours]	Algae
	Acute - EC50 - Fresh water	230 mg/l [72 hours]	Algae
tert-Butyl methyl ether	Acute - LC50 - Fresh water	672 mg/l [96 hours]	Fish - Fathead minnow - <i>Pimephales promelas</i>
	Acute - EC50 - Fresh water	472 mg/l [48 hours]	Daphnia
	Chronic - NOEC - Marine water	26 mg/l [28 days]	Daphnia
	Chronic - NOEC - Fresh water	3.04 mg/l [21 days]	Fish
Heptane	Acute - LC50 - Fresh water	375 mg/l [96 hours]	Fish - Mozambique

Section 12. Ecological information

	water		tilapia - <i>Oreochromis mossambicus</i> Fish - Fathead minnow - <i>Pimephales promelas</i>
Cyclohexane	Acute - LC50 - Fresh water	4530 µg/l [96 hours]	

Conclusion/Summary [Product] : Not available.

Persistence and degradability

Product/ingredient name	Result		
pentane	OECD [Ready Biodegradability - Manometric Respirometry Test]	87% [28 days] - Readily	Aerobic
2-methoxy-2-methylbutane	OECD [Ready Biodegradability - Closed Bottle Test]	4% [28 days] - Readily	-
tert-Butyl methyl ether	OECD [Ready Biodegradability - Closed Bottle Test]	0% [28 days] - Not readily	Aerobic

Conclusion/Summary [Product] : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
pentane	-	-	Readily
2-methoxy-2-methylbutane	-	-	Not readily
tert-Butyl methyl ether	-	50%; 3.2 day(s)	Not readily
Heptane	-	-	Readily
Cyclohexane	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
pentane	3.45	171	Low
2-methoxy-2-methylbutane	1.55	-	Low
tert-Butyl methyl ether	1.04	1.5	Low
Heptane	4.66	552	High
Cyclohexane	3.44	167	Low

Mobility in soil

Soil/Water partition coefficient : 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 minimized 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

Section 13. Disposal considerations

liners may retain some product residues. Vapor 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	TDG Classification	IMDG	IATA
UN number	UN1993	UN1993	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (pentane, tert-Butyl methyl ether)	FLAMMABLE LIQUID, N.O.S. (pentane, tert-Butyl methyl ether)	Flammable liquid, n.o.s. (pentane, tert-Butyl methyl ether)
Transport hazard class(es)	3  	3  	3 
Packing group	II	II	II
Environmental hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Proof of classification statement

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark).

Additional information

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark). The marine pollutant mark is not required when transported by road or rail.

Explosive Limit and Limited Quantity Index 1

Passenger Carrying Road or Rail Index 5

Special provisions 16, 150

IMDG

: The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

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 15. Regulatory information

Canadian lists

- Canadian NPRI** : The following components are listed: pentane (all isomers); methyl tert-butyl ether; heptane (all isomers)
- CEPA Toxic substances** : None of the components are listed.

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

- Canada** : All components are listed or exempted.
- United States** : All components are active or exempted.

Section 16. Other information

History

- Date of issue/Date of revision** : 09/24/2025
- Date of previous issue** : 12/23/2022
- Version** : 7

Key to abbreviations

- ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 DOT = Department of Transportation
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 HPR = Hazardous Products Regulations
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 IMO = International Maritime Organization
 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
 SGG = Segregation Group
 TDG = Transportation of Dangerous Goods
 UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
ASPIRATION HAZARD - Category 1	Expert judgment
AQUATIC HAZARD (LONG-TERM) - Category 2	Calculation method

Section 16. Other information

✔ Indicates information that has changed from previously issued version.

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