Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name | **Flammable Liquid Mixture Containing 2,3-Dimethylbutane (1-9%), 2-Methylpentane (1-9%), and Heptane (Balance)**

Product Code | 40059

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

Relevant identified use(s) | For general analytical/synthetic chemical uses

1.3 Details of the supplier of the safety data sheet

Manufacturer | Air Liquide

2700 Post Oak Blvd.
Houston, TX 77056
United States
www.us.airliquide.com
sds@airliquide.com

Telephone (Technical) | 713-896-2896

Telephone (Technical) | 800-819-1704

1.4 Emergency telephone number

Manufacturer | 800-424-9300 - CHEMTREC

Manufacturer | +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP | Flammable Liquids 2 - H225
Aspiration 1 - H304
Skin Irritation 2 - H315
Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects - H336
Hazardous to the aquatic environment Acute 1 - H400
Hazardous to the aquatic environment Chronic 1 - H410

DSD/DPD | Highly Flammable (F)
Harmful (Xn)
Irritant (Xi)
Dangerous to the Environment (N)
R11, R38, R65, R67, R50, R53

2.2 Label Elements

CLP

DANGER

Hazard statements | H225 - Highly flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

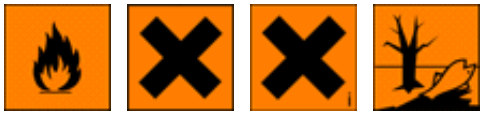
Precautionary statements

Prevention | P210 - Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground and/or bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting/equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P261 - Avoid breathing mist/vapours/spray.
P264 - Wash thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves and eye/face protection , .

Response | P370+P378 - In case of fire: Use appropriate media for extinction.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363 - Wash contaminated clothing before reuse.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P321 - Specific treatment, see supplemental first aid information.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331 - Do NOT induce vomiting.
P391 - Collect spillage.

Storage/Disposal | P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P235 - Keep cool.
P405 - Store locked up.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD



Risk phrases | R11 - Highly flammable.
R38 - Irritating to skin.
R65 - Harmful: may cause lung damage if swallowed.
R67 - Vapours may cause drowsiness and dizziness.
R50 - Very toxic to aquatic organisms.
R53 - May cause long-term adverse effects in the aquatic environment.

Safety phrases | S9 - Keep container in a well ventilated place
S16 - Keep away from sources of ignition - No Smoking.
S57 - Use appropriate containment to avoid environmental contamination.

2.3 Other Hazards

CLP | According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD | According to European Directive 1999/45/EC this material is considered dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

Flammable Liquids 2 - H225
Aspiration 1 - H304
Eye Irritation 2 - H319
Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects - H336

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements

Highly flammable liquid and vapour - H225
May be fatal if swallowed and enters airways - H304
Causes serious eye irritation - H319
May cause drowsiness or dizziness - H336

Precautionary statements

Prevention

Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking. - P210
Keep container tightly closed. - P233
Ground and/or bond container and receiving equipment. - P240
Use explosion-proof electrical/ventilating/lighting/equipment. - P241
Use only non-sparking tools. - P242
Take precautionary measures against static discharge. - P243
Avoid breathing mist/vapours/spray. - P261
Wash thoroughly after handling. - P264
Use only outdoors or in a well-ventilated area. - P271
Wear protective gloves and eye/face protection , . - P280

Response

In case of fire: Use appropriate media for extinction. - P370+P378
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
Call a POISON CENTER or doctor/physician if you feel unwell. - P312
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - P303+P361+P353
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
If eye irritation persists: Get medical advice/attention. - P337+P313
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. - P301+P310
Do NOT induce vomiting. - P331

Storage/Disposal

Store in a well-ventilated place. Keep container tightly closed. - P403+P233
Keep cool. - P235
Store locked up. - P405
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

OSHA HCS 2012

Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

Flammable Liquids - B2

Other Toxic Effects - D2B

2.2 Label elements

WHMIS

Flammable Liquids - B2
Other Toxic Effects - D2B

2.3 Other hazards

WHMIS

In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Composition				
Chemical Name	**Identifiers**	**%**	**LD50/LC50**	**Classifications According to Regulation/Directive**
2-Methylpentane	**CAS:**107-83-5 **EC Number:**203-523-4	1% TO 9%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2: F R11 Xi R38 N R51-53 Xn R65 R67 **EU CLP:** Annex VI, Table 3.1: Flam. Liq. 2, H225; Asp. Tox. 1, H304; Skin Irrit. 2, H315; STOT SE 3: Narc., H336; Aquatic Chronic 2, H411 **OSHA HCS 2012:** Flam. Liq. 2
2,3-Dimethylbutane	**CAS:**79-29-8 **EC Number:**201-193-6	1% TO 9%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2: F R11 Xn R65 Xi R38 R67 N R51-53 **EU CLP:** Annex VI, Table 3.1: Flam. Liq. 2, H225; Asp Tox. 1, H304; Skin Irrit. 2, H315; STOT SE 3: Narc., H336; Aquatic Chronic 2, H411 **OSHA HCS 2012:** Flam. Liq. 2
Heptane	**CAS:**142-82-5 **EC Number:**205-563-8 **EU Index:**601-008-00-2	Balance	Inhalation-Rat LC50 • 103 g/m³ 4 Hour(s)	**EU DSD/DPD:** Annex VI, Table 3.2: F R11 Xi R38 N R50-53 Xn R65 R67 **EU CLP:** Annex VI, Table 3.1: Flam. Liq. 2, H225; Asp. Tox. 1, H320; Skin Irrit. 2, H315; STOT SE 3: Narc., H336; Aquatic Acute 1, H400; Aquatic Chronic 1, H410 **OSHA HCS 2012:** Flam. Liq. 2; Eye Irrit. 2; Asp. Tox. 1; STOT SE 3: Narc.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Move victim to fresh air.

Skin

In case of burns, immediately cool affected skin for as long as possible with cold

water. Do not remove clothing if adhering to skin. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing. Wash skin with soap and water.

Eye | In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.

Ingestion | Call a physician or poison control center immediately. Do NOT induce vomiting. If ingested, drink milk or egg white, gastric irrigate, call a physician. Do not give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration to the victim.

4.2 Most important symptoms and effects, both acute and delayed

| Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician | All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media | LARGE FIRES: Water spray, fog or alcohol-resistant foam.
SMALL FIRES: Dry chemical, CO2, water spray or alcohol-resistant foam.

Unsuitable Extinguishing Media | No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards | Containers may explode when heated.
Vapor explosion hazard indoors, outdoors or in sewers.
HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
Many liquids are lighter than water.
Runoff to sewer may create fire or explosion hazard.
Vapors may form explosive mixtures with air.
Vapors may travel to source of ignition and flash back.
The components of this liquid mixture can float on water; therefore, water contaminated with this liquid mixture can spread the flammable liquid and can spread fire.
This liquid mixture can accumulate static charge by flow or agitation. Static discharge may cause this liquid mixture to ignite.

Hazardous Combustion Products | Carbon dioxide and carbon monoxide.

5.3 Advice for firefighters

| Structural firefighters' protective clothing will only provide limited protection.
Wear positive pressure self-contained breathing apparatus (SCBA).
Move containers from fire area if you can do it without risk.
LARGE FIRES: Cool containers with flooding quantities of water until well after fire is out.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions | Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact.

Emergency Procedures | As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet) ELIMINATE all ignition sources (no

smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

6.2 Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Stop leak if you can do it without risk.
  Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
  Use clean non-sparking tools to collect absorbed material.
  A vapor suppressing foam may be used to reduce vapors.
  All equipment used when handling the product must be grounded.
  LARGE SPILLS: Dike far ahead of liquid spill for later disposal.
  LARGE SPILLS: Water spray may reduce vapor; but may not prevent ignition in closed spaces.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Keep away from heat and ignition sources – No Smoking. Take precautionary measures against static charges. All equipment used when handling the product must be grounded. Use only non-sparking tools. Use explosion-proof - electrical, ventilating and/or lighting equipment. Use only with adequate ventilation. Wear appropriate personal protective equipment, avoid direct contact. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container. Do not breathe mist, vapors, spray. Avoid contact with skin and eyes. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage

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

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	**ACGIH**	**Canada Ontario**	**Canada Quebec**	**China**	**France**
Heptane (142-82-5)	STELs	500 ppm STEL (listed under Heptane, all isomers)	500 ppm STEL (listed under Heptane, all isomers)	500 ppm STEV; 2050 mg/m3 STEV	1000 mg/m3 STEL	500 ppm STEL [VLCT] (restrictive limit); 2085 mg/m3 STEL [VLCT] (restrictive limit)
	TWAs	400 ppm TWA (listed under Heptane, all isomers)	400 ppm TWA	400 ppm TWAEV; 1640 mg/m3 TWAEV	500 mg/m3 TWA	400 ppm TWA [VME] (restrictive limit); 1668 mg/m3 TWA [VME] (restrictive limit)
	STELs	Not established	1000 ppm TWA (listed under Hexane, isomers, other than	Not established	Not established	Not established

2-Methylpentane (107-83-5)			n-Hexane)			
	TWAs	Not established	500 ppm TWA (listed under Hexane, isomers, other than n-Hexane)	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	Germany DFG	Germany TRGS	Ireland	Israel	Italy
Heptane (142-82-5)	TWAs	Not established	500 ppm TWA AGW (all isomers, exposure factor 1); 2100 mg/m3 TWA AGW (all isomers, exposure factor 1)	500 ppm TWA; 2085 mg/m3 TWA	400 ppm TWA (listed under Heptane, all isomers)	500 ppm TWA; 2085 mg/m3 TWA
	STELs	Not established	Not established	Not established	500 ppm STEL	Not established
	Ceilings	500 ppm Peak; 2100 mg/m3 Peak	Not established	Not established	Not established	Not established
	MAKs	500 ppm TWA MAK; 2100 mg/m3 TWA MAK	Not established	Not established	Not established	Not established
2-Methylpentane (107-83-5)	TWAs	Not established	500 ppm TWA AGW (exposure factor 2); 1800 mg/m3 TWA AGW (exposure factor 2)	Not established	Not established	Not established
	Ceilings	1000 ppm Peak (except n-Hexane, listed under Hexane); 3600 mg/m3 Peak (except n-Hexane, listed under Hexane)	Not established	Not established	Not established	Not established
	MAKs	500 ppm TWA MAK; 1800 mg/m3 TWA MAK	Not established	Not established	Not established	Not established
2,3-Dimethylbutane (79-29-8)	TWAs	Not established	500 ppm TWA AGW (exposure factor 2); 1800 mg/m3 TWA AGW (exposure factor 2)	Not established	Not established	Not established
	Ceilings	1000 ppm Peak (except n-Hexane, listed under Hexane); 3600 mg/m3 Peak (except n-Hexane, listed under Hexane)	Not established	Not established	Not established	Not established
	MAKs	500 ppm TWA MAK; 1800 mg/m3 TWA MAK	Not established	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	NIOSH	OSHA	OSHA Vacated	Portugal	Spain
	STELs	Not established	Not established	500 ppm STEL; 2000 mg/m3 STEL	500 ppm STEL [VLE-CD	Not established
						500 ppm TWA [VLA-

Heptane (142-82-5)	TWAs	85 ppm TWA; 350 mg/m3 TWA	500 ppm TWA; 2000 mg/m3 TWA	400 ppm TWA; 1600 mg/m3 TWA	400 ppm TWA [VLE-MP]	ED] (indicative limit value); 2085 mg/m3 TWA [VLA-ED] (indicative limit value)
	Ceilings	440 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)	Not established	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	Sweden
Heptane (142-82-5)	STELs	300 ppm STV; 1200 mg/m3 STV
	TWAs	200 ppm LLV; 800 mg/m3 LLV
2-Methylpentane (107-83-5)	STELs	300 ppm STV; 1100 mg/m3 STV
	TWAs	200 ppm LLV; 700 mg/m3 LLV
2,3-Dimethylbutane (79-29-8)	STELs	300 ppm STV; 1100 mg/m3 STV
	TWAs	200 ppm LLV; 700 mg/m3 LLV

Exposure Control Notations

Germany DFG

- 2,3-Dimethylbutane (79-29-8): **Pregnancy:** (classification not yet possible)
- 2-Methylpentane (107-83-5): **Pregnancy:** (classification not yet possible)
- Heptane (142-82-5): **Pregnancy:** (classification not yet possible)

8.2 Exposure controls

Engineering Measures/Controls | Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof - electrical, ventilating and/or lighting equipment.

Personal Protective Equipment

Respiratory | Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face | Wear chemical splash safety goggles.

Skin/Body | Wear leather gloves when handling cylinders.

Environmental Exposure Controls | Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

LLV = Limit Level Value is the exposure limit for 8-hour work day

STEL = Short Term Exposure Limits are based on 15-minute exposures

VLA-ED = Valor Límite Ambiental Exposición Diaria is the limit for the daily average concentration

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Liquid	Appearance/Description	Colorless liquid with a gasoline-like odor.
Color	Colorless	Odor	Gasoline-like
Odor Threshold	Data lacking		
General Properties			
Boiling Point	Data lacking	Melting Point	Data lacking
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	Data lacking	Water Solubility	Data lacking
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	-32 C(-25.6 F) CC (Closed Cup) (2-Methylpentane)	UEL	7 % (2.3-Dimethylbutane, 2-Methylpentane)
LEL	1.07 % (Heptane)	Autoignition	204 C(399.2 F) (Heptane)
Flammability (solid, gas)	Not relevant.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Incompatible materials. Excess heat, sparks, open flame.

10.5 Incompatible materials

- Strong oxidizing agents (i.e. peroxides, nitrates, and perchlorates).

10.6 Hazardous decomposition products

- If ignited in air, this liquid mixture will generate carbon monoxide and carbon dioxide.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
2-Methylpentane (1% TO 9%)	107-83-5	**Multi-dose Toxicity:** Ingestion/Oral-Rat TDLo • 10 g/kg 4 Week(s)-Intermittent; *Kidney, Ureter, and Bladder*:**Changes in tubules (including acute renal failure, acute tubular necrosis)**; *Related to Chronic Data*:**Death in the Other Multiple Dose data type field**
Heptane (82% TO 98%)	142-82-5	**Acute Toxicity:** Inhalation-Rat LC50 • 103 g/m³ 4 Hour(s)

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
Aspiration Hazard	**EU/CLP** • Aspiration 1 **OSHA HCS 2012** • Aspiration 1
Carcinogenicity	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
Germ Cell Mutagenicity	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
Skin corrosion/Irritation	**EU/CLP** • Skin Irritation 2 **OSHA HCS 2012** • Data lacking
Skin sensitization	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
STOT-RE	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
STOT-SE	**EU/CLP** • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects **OSHA HCS 2012** • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects
Toxicity for Reproduction	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
Respiratory sensitization	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
Serious eye damage/Irritation	**EU/CLP** • Data lacking **OSHA HCS 2012** • Eye Irritation 2

Potential Health Effects

Inhalation

Acute (Immediate) | May affect the central nervous system. Symptoms may include dizziness, drowsiness, lethargy, coma and death.

Chronic (Delayed) | No data available

Skin

Acute (Immediate) | Causes skin irritation.

Chronic (Delayed) | No data available

Eye

Acute (Immediate) | Causes serious eye irritation.

Chronic (Delayed) | No data available

Ingestion

Acute (Immediate) | May be fatal if swallowed and enters airways. Material may be aspirated into lungs

during ingestion and/or subsequent vomiting. Aspiration of this material will cause severe lung injury, chemical pneumonitis, pulmonary edema or death.

Chronic (Delayed) | No data available

Key to abbreviations
LC = Lethal Concentration
TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

Component	CAS	Data	Comments
Heptane (82% TO 98%)	142-82-5	**Fish:** 96 Hour(s) LC50 Fish *Oreochromis mossambicus (Mozambique Tilapia)* 375 mg/L	

| Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

| Material data lacking.

12.3 Bioaccumulative potential

| Material data lacking.

12.4 Mobility in Soil

| Material data lacking.

12.5 Results of PBT and vPvB assessment

| No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

| No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste | Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste | Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1993	Flammable liquids, n.o.s. (Heptane, 2-Methylpentane)	3	II	NDA
TDG	UN1993	FLAMMABLE LIQUID, N.O.S. (Heptane, 2-Methylpentane)	3	II	Potential Marine Pollutant
IMO/IMDG	UN1993	FLAMMABLE LIQUID, N.O.S. (Heptane, 2-Methylpentane)	3	II	NDA

IATA/ICAO	UN1993	Flammable liquids, n.o.s. (Heptane, 2-Methylpentane)	3	II	NDA

14.6 Special precautions for user | None specified.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Data lacking.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications | Acute, Fire

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
2,3-Dimethylbutane	79-29-8	Yes	Yes	Yes
2-Methylpentane	107-83-5	Yes	Yes	Yes
Heptane	142-82-5	Yes	Yes	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
2,3-Dimethylbutane	79-29-8	Yes	No	Yes	Yes	No
2-Methylpentane	107-83-5	Yes	No	Yes	Yes	No
Heptane	142-82-5	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	**CAS**	**TSCA**
2,3-Dimethylbutane	79-29-8	Yes
2-Methylpentane	107-83-5	Yes
Heptane	142-82-5	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Heptane	142-82-5	B2, D2B
• 2-Methylpentane	107-83-5	B2
• 2,3-Dimethylbutane	79-29-8	B2

Canada - WHMIS - Ingredient Disclosure List

• Heptane	142-82-5	1 %
• 2-Methylpentane	107-83-5	1 %
• 2,3-Dimethylbutane	79-29-8	1 %

Environment

Canada - CEPA - Priority Substances List

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

China - Dangerous Goods List

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	

China - Export Control List - Part I Chemicals

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

• Heptane	142-82-5	F; R11 Xi; R38 N; R50-53 Xn; R65 R67
• 2-Methylpentane	107-83-5	F; R11 Xi; R38 N; R51-53 Xn; R65 R67
• 2,3-Dimethylbutane	79-29-8	F; R11 Xi; R38 N; R51-53 Xn; R65 R67

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

• Heptane	142-82-5	F Xn N R:11-38-65-67-50/53 S:(2)-9-16-29-33-60-61-62
• 2-Methylpentane	107-83-5	F Xn N R:11-38-65-67-51/53 S:(2)-9-16-29-33-61-62

• 2,3-Dimethylbutane	79-29-8	F Xn N R:11-38-65-67-51/53 S:(2)-9-16-29-33-61-62

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

• Heptane	142-82-5	C
• 2-Methylpentane	107-83-5	C
• 2,3-Dimethylbutane	79-29-8	C

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

• Heptane	142-82-5	S:(2)-9-16-29-33-60-61-62
• 2-Methylpentane	107-83-5	S:(2)-9-16-29-33-61-62
• 2,3-Dimethylbutane	79-29-8	S:(2)-9-16-29-33-61-62

Germany

Environment

Germany - TA Luft - Types and Classes

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

• Heptane	142-82-5	ID Number 120, hazard class 2 - hazard to waters
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

Germany - Water Classification (VwVwS) - Annex 3

• Heptane	142-82-5	ID Number 120, hazard class 2 - hazard to waters
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

Other

United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Constituents for Detection Monitoring

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - D Series Wastes - Max Conc of Contaminants for the Tox Characteristic

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - F Series Wastes - Wastes from Nonspecific Sources

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - K Series Wastes - Wastes from Specified Sources

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - P Series Wastes - Acutely Toxic Wastes

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Part 268 Appendix III - Halogenated Organic Compounds (HOCs)

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - TSD Facilities Ground Water Monitoring

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - U Series Wastes - Acutely Toxic Wastes & Other Hazardous Characteristics

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Waste Minimization Priority Chemicals

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Heptane	142-82-5	Not Listed
• 2-Methylpentane	107-83-5	Not Listed
• 2,3-Dimethylbutane	79-29-8	Not Listed

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

H411 - Toxic to aquatic life with long lasting effects

R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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Key to abbreviations

NDA = No Data Available