

# SAFETY DATA SHEET

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 1. Identification

- GHS product identifier** : Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene
- Other means of identification** : Not available.
- Product use** : Synthetic/Analytical chemistry.
- SDS #** : 018356
- Supplier's details** : Airgas USA, LLC and its affiliates  
259 North Radnor-Chester Road  
Suite 100  
Radnor, PA 19087-5283  
1-610-687-5253
- 24-hour telephone** : 1-866-734-3438

## Section 2. Hazards identification

- OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
- Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 1  
SKIN CORROSION/IRRITATION - Category 2  
TOXIC TO REPRODUCTION (Fertility) - Category 2  
TOXIC TO REPRODUCTION (Unborn child) - Category 2  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2  
AQUATIC HAZARD (ACUTE) - Category 3  
AQUATIC HAZARD (LONG-TERM) - Category 2

### GHS label elements

**Hazard pictograms** :



**Signal word** :

Danger

**Hazard statements** :

- Extremely flammable liquid and vapor.  
May form explosive mixtures in Air.  
Causes skin irritation.  
Suspected of damaging fertility or the unborn child.  
May cause drowsiness and dizziness.  
May cause damage to organs through prolonged or repeated exposure.  
Toxic to aquatic life with long lasting effects.

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 2. Hazards identification

### Precautionary statements

- General** : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe vapor. Wash hands thoroughly after handling.
- Response** : Collect spillage. Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention.
- Storage** : Store locked up. Store in a well-ventilated place. Keep cool.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Not available.

### CAS number/other identifiers

- CAS number** : Not applicable.
- Product code** : 018356

Ingredient name	%	CAS number
n-hexane	45 - 65	110-54-3
3-methylpentane	20 - 24.99	96-14-0
2-methylpentane	10 - 15	107-83-5
methylcyclopentane	1 - 10	96-37-7
2,3-dimethylbutane	1 - 2.49	79-29-8
2,2-dimethylpentane	0.25 - 0.6	590-35-2
2,4-dimethylpentane	0.25 - 0.5	108-08-7
cyclohexane	0.25 - 0.5	110-82-7
2-methylhexane	0.1 - 0.2	591-76-4
3-methylhexane	0.1 - 0.2	589-34-4
2-methylpent-2-ene	0.0001 - 0.0999	625-27-4
3,3-dimethylpent-1-ene	0.0001 - 0.0999	3404-73-7
2,3-dimethylpentane	0.0001 - 0.0999	565-59-3
3,3-dimethylpentane	0.0001 - 0.0999	562-49-2
benzene	0.0001 - 0.0999	71-43-2
2,2-dimethylbutane	0.0001 - 0.0999	75-83-2
cis-1,3-dimethylcyclopentane	0.0001 - 0.05	2532-58-3
(E)-3-methylpent-2-ene	0.0001 - 0.05	616-12-6
2,2,3-trimethylbutane	0.0001 - 0.05	464-06-2
heptane	0.0001 - 0.05	142-82-5
trans-1,2-dimethylcyclopentane	0.0001 - 0.05	822-50-4
3-ethylpentane	0.0001 - 0.05	617-78-7
trans-1,3-dimethylcyclopentane	0.0001 - 0.05	1759-58-6

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## Section 3. Composition/information on ingredients

Trans-2-Hexene	0.0001 - 0.05	4050-45-7
isopentane	0.0001 - 0.05	78-78-4
n-pentane	0.0001 - 0.05	109-66-0
(Z)-3-methylpent-2-ene	0.0001 - 0.05	922-62-3
1,1-dimethylcyclopentane	0.0001 - 0.05	1638-26-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**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** : 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** : 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. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or 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** : No known significant effects or critical hazards.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
- Skin contact** : Causes skin irritation.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- Ingestion** : Can cause central nervous system (CNS) depression.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following: pain or irritation, watering, redness
- Inhalation** : Adverse symptoms may include the following: nausea or vomiting, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness, reduced fetal weight, increase in fetal deaths, skeletal malformations
- Skin contact** : Adverse symptoms may include the following: irritation, redness, reduced fetal weight, increase in fetal deaths, skeletal malformations

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## Section 4. First aid measures

**Ingestion** : Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations

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

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

**Specific treatments** : No specific treatment.

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

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

**Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.

**Unsuitable extinguishing media** : Do not use water jet.

**Specific hazards arising from the chemical** : Extremely flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. 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.

**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 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.

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## Section 6. Accidental release measures

### Methods and materials for containment and cleaning up

- Small spill** : 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.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. 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.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

n-hexane

**ACGIH TLV (United States, 3/2016).**  
**Absorbed through skin.**

TWA: 50 ppm 8 hours.

**NIOSH REL (United States, 10/2013).**

TWA: 180 mg/m<sup>3</sup> 10 hours.

TWA: 50 ppm 10 hours.

**OSHA PEL (United States, 2/2013).**

TWA: 1800 mg/m<sup>3</sup> 8 hours.



Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cyclohexane / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 8. Exposure controls/personal protection

3-methylpentane

TWA: 500 ppm 8 hours.  
**OSHA PEL 1989 (United States, 3/1989).**  
TWA: 180 mg/m<sup>3</sup> 8 hours.  
TWA: 50 ppm 8 hours.  
**ACGIH TLV (United States, 3/2016).**  
TWA: 500 ppm 8 hours.  
TWA: 1760 mg/m<sup>3</sup> 8 hours.  
STEL: 1000 ppm 15 minutes.  
STEL: 3500 mg/m<sup>3</sup> 15 minutes.  
**OSHA PEL 1989 (United States, 3/1989).**  
TWA: 500 ppm 8 hours.  
TWA: 1800 mg/m<sup>3</sup> 8 hours.  
STEL: 1000 ppm 15 minutes.  
STEL: 3600 mg/m<sup>3</sup> 15 minutes.  
**NIOSH REL (United States, 10/2013).**

2-methylpentane

TWA: 100 ppm 10 hours.  
TWA: 350 mg/m<sup>3</sup> 10 hours.  
CEIL: 510 ppm 15 minutes.  
CEIL: 1800 mg/m<sup>3</sup> 15 minutes.  
**ACGIH TLV (United States, 3/2016).**  
TWA: 500 ppm 8 hours.  
TWA: 1760 mg/m<sup>3</sup> 8 hours.  
STEL: 1000 ppm 15 minutes.  
STEL: 3500 mg/m<sup>3</sup> 15 minutes.  
**OSHA PEL 1989 (United States, 3/1989).**  
TWA: 500 ppm 8 hours.  
TWA: 1800 mg/m<sup>3</sup> 8 hours.  
STEL: 1000 ppm 15 minutes.  
STEL: 3600 mg/m<sup>3</sup> 15 minutes.  
**NIOSH REL (United States, 10/2013).**  
TWA: 100 ppm 10 hours.  
TWA: 350 mg/m<sup>3</sup> 10 hours.  
CEIL: 510 ppm 15 minutes.  
CEIL: 1800 mg/m<sup>3</sup> 15 minutes.

methylcyclopentane

**ACGIH TLV (United States, 3/2016).**  
TWA: 500 ppm 8 hours.  
TWA: 1760 mg/m<sup>3</sup> 8 hours.  
STEL: 1000 ppm 15 minutes.  
STEL: 3500 mg/m<sup>3</sup> 15 minutes.  
**OSHA PEL 1989 (United States, 3/1989).**  
TWA: 500 ppm 8 hours.  
TWA: 1800 mg/m<sup>3</sup> 8 hours.  
STEL: 1000 ppm 15 minutes.  
STEL: 3600 mg/m<sup>3</sup> 15 minutes.  
**NIOSH REL (United States, 10/2013).**  
TWA: 100 ppm 10 hours.  
TWA: 350 mg/m<sup>3</sup> 10 hours.  
CEIL: 510 ppm 15 minutes.  
CEIL: 1800 mg/m<sup>3</sup> 15 minutes.

2,3-dimethylbutane

**ACGIH TLV (United States, 3/2016).**  
STEL: 3500 mg/m<sup>3</sup> 15 minutes.  
STEL: 1000 ppm 15 minutes.  
TWA: 1760 mg/m<sup>3</sup> 8 hours.  
TWA: 500 ppm 8 hours.  
**NIOSH REL (United States, 10/2013).**  
CEIL: 1800 mg/m<sup>3</sup> 15 minutes.  
CEIL: 510 ppm 15 minutes.  
TWA: 350 mg/m<sup>3</sup> 10 hours.  
TWA: 100 ppm 10 hours.  
**OSHA PEL 1989 (United States, 3/1989).**

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## Section 8. Exposure controls/personal protection

2,2-dimethylpentane	<p>STEL: 3600 mg/m<sup>3</sup> 15 minutes.            STEL: 1000 ppm 15 minutes.            TWA: 1800 mg/m<sup>3</sup> 8 hours.            TWA: 500 ppm 8 hours.  <b>ACGIH TLV (United States, 3/2016).</b>            TWA: 400 ppm 8 hours.            TWA: 1640 mg/m<sup>3</sup> 8 hours.            STEL: 500 ppm 15 minutes.            STEL: 2050 mg/m<sup>3</sup> 15 minutes.</p>
2,4-dimethylpentane	<p><b>ACGIH TLV (United States, 3/2016).</b>            TWA: 400 ppm 8 hours.            TWA: 1640 mg/m<sup>3</sup> 8 hours.            STEL: 500 ppm 15 minutes.            STEL: 2050 mg/m<sup>3</sup> 15 minutes.</p>
cyclohexane	<p><b>ACGIH TLV (United States, 3/2016).</b>            TWA: 100 ppm 8 hours.  <b>NIOSH REL (United States, 10/2013).</b>            TWA: 1050 mg/m<sup>3</sup> 10 hours.            TWA: 300 ppm 10 hours.  <b>OSHA PEL (United States, 2/2013).</b>            TWA: 1050 mg/m<sup>3</sup> 8 hours.            TWA: 300 ppm 8 hours.  <b>OSHA PEL 1989 (United States, 3/1989).</b>            TWA: 1050 mg/m<sup>3</sup> 8 hours.            TWA: 300 ppm 8 hours.</p>
2-methylhexane	<p><b>ACGIH TLV (United States, 3/2016).</b>            TWA: 400 ppm 8 hours.            TWA: 1640 mg/m<sup>3</sup> 8 hours.            STEL: 500 ppm 15 minutes.            STEL: 2050 mg/m<sup>3</sup> 15 minutes.</p>
3-methylhexane	<p><b>ACGIH TLV (United States, 3/2016).</b>            TWA: 400 ppm 8 hours.            TWA: 1640 mg/m<sup>3</sup> 8 hours.            STEL: 500 ppm 15 minutes.            STEL: 2050 mg/m<sup>3</sup> 15 minutes.</p>
2-methylpent-2-ene	None.
3,3-dimethylpent-1-ene	None.
2,3-dimethylpentane	<p><b>ACGIH TLV (United States, 3/2016).</b>            TWA: 400 ppm 8 hours.            TWA: 1640 mg/m<sup>3</sup> 8 hours.            STEL: 500 ppm 15 minutes.            STEL: 2050 mg/m<sup>3</sup> 15 minutes.</p>
3,3-dimethylpentane	<p><b>ACGIH TLV (United States, 3/2016).</b>            TWA: 400 ppm 8 hours.            TWA: 1640 mg/m<sup>3</sup> 8 hours.            STEL: 500 ppm 15 minutes.            STEL: 2050 mg/m<sup>3</sup> 15 minutes.</p>
benzene	<p><b>ACGIH TLV (United States, 3/2016).</b>  <b>Absorbed through skin.</b>            STEL: 8 mg/m<sup>3</sup> 15 minutes.            STEL: 2.5 ppm 15 minutes.            TWA: 1.6 mg/m<sup>3</sup> 8 hours.            TWA: 0.5 ppm 8 hours.  <b>NIOSH REL (United States, 10/2013).</b>            STEL: 1 ppm 15 minutes.            TWA: 0.1 ppm 10 hours.  <b>OSHA PEL (United States, 2/2013).</b>            STEL: 5 ppm 15 minutes.            TWA: 1 ppm 8 hours.  <b>OSHA PEL 1989 (United States, 3/1989).</b></p>

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## Section 8. Exposure controls/personal protection

2,2-dimethylbutane

STEL: 5 ppm 15 minutes.

TWA: 1 ppm 8 hours.

**OSHA PEL Z2 (United States, 2/2013).**

AMP: 50 ppm 10 minutes.

CEIL: 25 ppm

TWA: 10 ppm 8 hours.

**ACGIH TLV (United States, 3/2016).**

TWA: 500 ppm 8 hours.

TWA: 1760 mg/m<sup>3</sup> 8 hours.

STEL: 1000 ppm 15 minutes.

STEL: 3500 mg/m<sup>3</sup> 15 minutes.

**OSHA PEL 1989 (United States, 3/1989).**

TWA: 500 ppm 8 hours.

TWA: 1800 mg/m<sup>3</sup> 8 hours.

STEL: 1000 ppm 15 minutes.

STEL: 3600 mg/m<sup>3</sup> 15 minutes.

**NIOSH REL (United States, 10/2013).**

TWA: 100 ppm 10 hours.

TWA: 350 mg/m<sup>3</sup> 10 hours.

CEIL: 510 ppm 15 minutes.

CEIL: 1800 mg/m<sup>3</sup> 15 minutes.

None.

None.

**ACGIH TLV (United States, 3/2016).**

TWA: 400 ppm 8 hours.

TWA: 1640 mg/m<sup>3</sup> 8 hours.

STEL: 500 ppm 15 minutes.

STEL: 2050 mg/m<sup>3</sup> 15 minutes.

**ACGIH TLV (United States, 3/2016).**

STEL: 2050 mg/m<sup>3</sup> 15 minutes.

STEL: 500 ppm 15 minutes.

TWA: 1640 mg/m<sup>3</sup> 8 hours.

TWA: 400 ppm 8 hours.

**NIOSH REL (United States, 10/2013).**

CEIL: 1800 mg/m<sup>3</sup> 15 minutes.

CEIL: 440 ppm 15 minutes.

TWA: 350 mg/m<sup>3</sup> 10 hours.

TWA: 85 ppm 10 hours.

**OSHA PEL (United States, 2/2013).**

TWA: 2000 mg/m<sup>3</sup> 8 hours.

TWA: 500 ppm 8 hours.

**OSHA PEL 1989 (United States, 3/1989).**

STEL: 2000 mg/m<sup>3</sup> 15 minutes.

STEL: 500 ppm 15 minutes.

TWA: 1600 mg/m<sup>3</sup> 8 hours.

TWA: 400 ppm 8 hours.

None.

**ACGIH TLV (United States, 3/2016).**

TWA: 400 ppm 8 hours.

TWA: 1640 mg/m<sup>3</sup> 8 hours.

STEL: 500 ppm 15 minutes.

STEL: 2050 mg/m<sup>3</sup> 15 minutes.

None.

None.

**ACGIH TLV (United States, 3/2016).**

TWA: 1000 ppm 8 hours.

**ACGIH TLV (United States, 3/2016).**

TWA: 1000 ppm 8 hours.

**NIOSH REL (United States, 10/2013).**

CEIL: 1800 mg/m<sup>3</sup> 15 minutes.

cis-1,3-dimethylcyclopentane  
(E)-3-methylpent-2-ene  
2,2,3-trimethylbutane

heptane

trans-1,2-dimethylcyclopentane  
3-ethylpentane

trans-1,3-dimethylcyclopentane  
Trans-2-Hexene  
isopentane

n-pentane



Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 8. Exposure controls/personal protection

CEIL: 610 ppm 15 minutes.

TWA: 350 mg/m<sup>3</sup> 10 hours.

TWA: 120 ppm 10 hours.

**OSHA PEL (United States, 2/2013).**

TWA: 2950 mg/m<sup>3</sup> 8 hours.

TWA: 1000 ppm 8 hours.

**OSHA PEL 1989 (United States, 3/1989).**

STEL: 2250 mg/m<sup>3</sup> 15 minutes.

STEL: 750 ppm 15 minutes.

TWA: 1800 mg/m<sup>3</sup> 8 hours.

TWA: 600 ppm 8 hours.

None.

None.

(Z)-3-methylpent-2-ene  
1,1-dimethylcyclopentane

### 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: chemical splash goggles.

#### 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

: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	: Liquid.
<b>Color</b>	: Not available.
<b>Boiling/condensation point</b>	: Lowest known value: 57.9°C (136.2°F) (2,3-dimethylbutane). Weighted average: 66.53°C (151.8°F)
<b>Melting/freezing point</b>	: May start to solidify at the following temperature: -95.35°C (-139.6°F) This is based on data for the following ingredient: n-hexane. Weighted average: -112.31°C (-170.2°F)
<b>Critical temperature</b>	: Lowest known value: 224.35°C (435.8°F) (hexane).
<b>Odor</b>	: Not available.
<b>Odor threshold</b>	: Not available.
<b>pH</b>	: Not available.
<b>Flash point</b>	: Not available.
<b>Burning time</b>	: Not applicable.
<b>Burning rate</b>	: Not applicable.
<b>Evaporation rate</b>	: Not available.
<b>Flammability (solid, gas)</b>	: Not available.
<b>Lower and upper explosive (flammable) limits</b>	: Not available.
<b>Vapor pressure</b>	: Not available.
<b>Vapor density</b>	: Highest known value: 3 (Air = 1) (n-hexane). Weighted average: 2.99 (Air = 1)
<b>Gas Density (lb/ft<sup>3</sup>)</b>	: Weighted average: 0.67
<b>Relative density</b>	: Not available.
<b>Solubility</b>	: Not available.
<b>Solubility in water</b>	: Not available.
<b>Partition coefficient: n-octanol/water</b>	: Not available.
<b>Auto-ignition temperature</b>	: Not available.
<b>Decomposition temperature</b>	: Not available.
<b>SADT</b>	: Not available.
<b>Viscosity</b>	: Not available.

## Section 10. Stability and reactivity

<b>Reactivity</b>	: No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	: The product is stable.
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	: 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.
<b>Incompatible materials</b>	: Reactive or incompatible with the following materials: oxidizing materials
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 10. Stability and reactivity

**Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
n-hexane	LC50 Inhalation Gas.	Rat	48000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	96000 ppm	1 hours
	LD50 Oral	Rat	15840 mg/kg	-
cyclohexane	LD50 Oral	Rat	6240 mg/kg	-
	LC50 Inhalation Vapor	Rat	87000 mg/m <sup>3</sup>	4 hours
2-methylpent-2-ene	LC50 Inhalation Gas.	Rat	10000 ppm	7 hours
	LD50 Oral	Rat	930 mg/kg	-
	LC50 Inhalation Vapor	Rat	50242 ppm	1 hours
benzene	LC50 Inhalation Gas.	Rat	48000 ppm	4 hours
	LD50 Oral	Rat	50242 ppm	1 hours
	LC50 Inhalation Vapor	Rat	103 g/m <sup>3</sup>	4 hours
2,2,3-trimethylbutane	LC50 Inhalation Vapor	Rat	280000 mg/m <sup>3</sup>	4 hours
	LC50 Inhalation Gas.	Rat	364 g/m <sup>3</sup>	4 hours
	LC50 Inhalation Vapor	Rat		
heptane	LC50 Inhalation Vapor	Rat		
	LC50 Inhalation Vapor	Rat		
isopentane	LC50 Inhalation Vapor	Rat		
n-pentane	LC50 Inhalation Vapor	Rat		

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
n-hexane benzene	Eyes - Mild irritant	Rabbit	-	10 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	88 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 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	-

#### Sensitization

Not available.

#### Mutagenicity

Not available.

#### Carcinogenicity

Not available.

#### Classification

Product/ingredient name	OSHA	IARC	NTP
benzene	+	1	Known to be a human carcinogen.

#### Reproductive toxicity

Not available.

#### Teratogenicity

Not available.

#### Specific target organ toxicity (single exposure)

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
n-hexane	Category 3	Not applicable.	Narcotic effects
3-methylpentane	Category 3	Not applicable.	Narcotic effects
2-methylpentane	Category 3	Not applicable.	Narcotic effects
2,3-dimethylbutane	Category 3	Not applicable.	Narcotic effects
2,2-dimethylpentane	Category 3	Not applicable.	Narcotic effects
2,4-dimethylpentane	Category 3	Not applicable.	Narcotic effects
cyclohexane	Category 3	Not applicable.	Narcotic effects
2-methylhexane	Category 3	Not applicable.	Narcotic effects
3-methylhexane	Category 3	Not applicable.	Narcotic effects
2,3-dimethylpentane	Category 3	Not applicable.	Narcotic effects
3,3-dimethylpentane	Category 3	Not applicable.	Narcotic effects
2,2-dimethylbutane	Category 3	Not applicable.	Narcotic effects
2,2,3-trimethylbutane	Category 3	Not applicable.	Narcotic effects
heptane	Category 3	Not applicable.	Narcotic effects
3-ethylpentane	Category 3	Not applicable.	Narcotic effects
isopentane	Category 3	Not applicable.	Narcotic effects
n-pentane	Category 3	Not applicable.	Narcotic effects

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
n-hexane	Category 2	Not determined	Not determined
benzene	Category 1	Not determined	bone marrow

### Aspiration hazard

Name	Result
3-methylpentane	ASPIRATION HAZARD - Category 1
2-methylpentane	ASPIRATION HAZARD - Category 1
2,3-dimethylbutane	ASPIRATION HAZARD - Category 1
2,2-dimethylpentane	ASPIRATION HAZARD - Category 1
2,4-dimethylpentane	ASPIRATION HAZARD - Category 1
cyclohexane	ASPIRATION HAZARD - Category 1
2-methylhexane	ASPIRATION HAZARD - Category 1
3-methylhexane	ASPIRATION HAZARD - Category 1
2,3-dimethylpentane	ASPIRATION HAZARD - Category 1
3,3-dimethylpentane	ASPIRATION HAZARD - Category 1
2,2,3-trimethylbutane	ASPIRATION HAZARD - Category 1
3-ethylpentane	ASPIRATION HAZARD - Category 1

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
- Skin contact** : Causes skin irritation.
- Ingestion** : Can cause central nervous system (CNS) depression.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following: pain or irritation, watering, redness
- Inhalation** : Adverse symptoms may include the following: nausea or vomiting, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness, reduced fetal weight, increase in fetal deaths, skeletal malformations

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 11. Toxicological information

- Skin contact** : Adverse symptoms may include the following: irritation, redness, reduced fetal weight, increase in fetal deaths, skeletal malformations
- Ingestion** : Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations

### Delayed and immediate effects and also 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

Not available.

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

**Carcinogenicity** : No known significant effects or critical hazards.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : Suspected of damaging the unborn child.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : Suspected of damaging fertility.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
n-hexane cyclohexane	Acute LC50 113000 µg/l Fresh water	Fish - Oreochromis mossambicus	96 hours
	Acute LC50 8300 µg/l Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
benzene	Acute EC50 29000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1600000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute EC50 9230 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 21 mg/l Marine water	Crustaceans - Artemia salina	48 hours
	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
heptane	Chronic NOEC 98 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
	Acute LC50 375000 µg/l Fresh water	Fish - Oreochromis mossambicus	96 hours

### Persistence and degradability

Not available.



Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 12. Ecological information

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
n-hexane	4	501.187	high
3-methylpentane	3.6	-	low
methylcyclopentane	3.37	-	low
2,3-dimethylbutane	3.42	-	low
cyclohexane	3.44	167	low
benzene	2.13	11	low
2,2-dimethylbutane	3.82	-	low
heptane	4.66	552	high
isopentane	3	171	low
n-pentane	3.45	171	low

### Mobility in soil









Soil/water partition coefficient (K<sub>oc</sub>) : 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 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

	DOT	TDG	Mexico	IMDG	IATA
<b>UN number</b>	UN3161	UN3161	UN3161	UN3161	UN3161
<b>UN proper shipping name</b>	Liquefied gas, flammable n.o.s. (n-hexane, 3-methylpentane)	Liquefied gas, flammable n.o.s. (n-hexane, 3-methylpentane)	Liquefied gas, flammable n.o.s. (n-hexane, 3-methylpentane)	Liquefied gas, flammable n.o.s. (n-hexane, 3-methylpentane)	Liquefied gas, flammable n.o.s. (n-hexane, 3-methylpentane)
<b>Transport hazard class(es)</b>	2.1  	2.1  	2.1 	2.1  	2.1 
<b>Packing group</b>	-	-	-	-	-
<b>Environment</b>	No.	No.	No.	Yes.	No.

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 14. Transport information

<p><b>Additional information</b></p>	<p>This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.</p> <p><b>Reportable quantity</b> 7692.3 lbs / 3492.3 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</p>	<p>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.7 (Marine pollutant mark).</p> <p>The marine pollutant mark is not required when transported by road or rail.</p> <p><b>Explosive Limit and Limited Quantity Index</b> 0.125</p> <p><b>ERAP Index</b> 3000</p> <p><b>Passenger Carrying Ship Index</b> Forbidden</p> <p><b>Passenger Carrying Road or Rail Index</b> Forbidden</p>	<p>-</p>	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p>	<p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p>
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“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

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

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not available.

## Section 15. Regulatory information

**U.S. Federal regulations** : TSCA 8(a) PAIR: pentane; heptane  
TSCA 8(a) CDR Exempt/Partial exemption: Not determined  
United States inventory (TSCA 8b): Not determined.  
Clean Water Act (CWA) 307: benzene  
Clean Water Act (CWA) 311: cyclohexane; benzene

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

**SARA 302/304**

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 15. Regulatory information

### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Fire hazard  
 Immediate (acute) health hazard  
 Delayed (chronic) health hazard

### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
n-hexane	45 - 65	Yes.	No.	No.	Yes.	Yes.
3-methylpentane	20 - 24.99	Yes.	No.	No.	Yes.	No.
2-methylpentane	10 - 15	Yes.	No.	No.	Yes.	No.
methylcyclopentane	1 - 10	Yes.	No.	No.	No.	No.
2,3-dimethylbutane	1 - 2.49	Yes.	No.	No.	Yes.	No.
2,2-dimethylpentane	0.25 - 0.6	Yes.	No.	No.	Yes.	No.
2,4-dimethylpentane	0.25 - 0.5	Yes.	No.	No.	Yes.	No.
cyclohexane	0.25 - 0.5	Yes.	No.	No.	Yes.	No.
2-methylhexane	0.1 - 0.2	Yes.	No.	No.	Yes.	No.
3-methylhexane	0.1 - 0.2	Yes.	No.	No.	Yes.	No.
2-methylpent-2-ene	0.0001 - 0.0999	Yes.	No.	No.	No.	No.
2,3-dimethylpentane	0.0001 - 0.0999	Yes.	No.	No.	Yes.	No.
3,3-dimethylpentane	0.0001 - 0.0999	Yes.	No.	No.	Yes.	No.
benzene	0.0001 - 0.0999	Yes.	No.	No.	Yes.	Yes.
2,2-dimethylbutane	0.0001 - 0.0999	Yes.	No.	No.	Yes.	No.
cis-1,3-dimethylcyclopentane	0.0001 - 0.05	Yes.	No.	No.	No.	No.
(E)-3-methylpent-2-ene	0.0001 - 0.05	Yes.	No.	No.	No.	No.
2,2,3-trimethylbutane	0.0001 - 0.05	Yes.	No.	No.	Yes.	No.
heptane	0.0001 - 0.05	Yes.	No.	No.	Yes.	No.
3-ethylpentane	0.0001 - 0.05	Yes.	No.	No.	Yes.	No.
Trans-2-Hexene	0.0001 - 0.05	Yes.	No.	No.	No.	No.
isopentane	0.0001 - 0.05	Yes.	No.	No.	Yes.	No.
n-pentane	0.0001 - 0.05	Yes.	No.	No.	Yes.	No.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	n-hexane	110-54-3	45 - 65
<b>Supplier notification</b>	n-hexane	110-54-3	45 - 65

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

**Massachusetts** : The following components are listed: HEXANE; N-HEXANE; 3-METHYLPENTANE; ISOHEXANE; METHYLCYCLOPENTANE; 2,3-DIMETHYLBUTANE

**New York** : The following components are listed: Hexane

**New Jersey** : The following components are listed: n-HEXANE; HEXANE; 2-METHYLPENTANE; ISOHEXANE; METHYL CYCLOPENTANE; CYCLOPENTANE, METHYL-; 2, 3-DIMETHYLBUTANE; BUTANE, 2,3-DIMETHYL-

**Pennsylvania** : The following components are listed: HEXANE; PENTANE, 3-METHYL-; PENTANE, 2-METHYL-; CYCLOPENTANE, METHYL-; BUTANE, 2,3-DIMETHYL-

### California Prop. 65

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 15. Regulatory information

**WARNING:** This product contains less than 0.1% of a chemical known to the State of California to cause cancer.

**WARNING:** This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

### International regulations

#### International lists

#### National inventory

<b>Australia</b>	: Not determined.
<b>Canada</b>	: Not determined.
<b>China</b>	: Not determined.
<b>Europe</b>	: All components are listed or exempted.
<b>Japan</b>	: Not determined.
<b>Malaysia</b>	: Not determined.
<b>New Zealand</b>	: Not determined.
<b>Philippines</b>	: Not determined.
<b>Republic of Korea</b>	: All components are listed or exempted.
<b>Taiwan</b>	: Not determined.

#### Canada

<b>WHMIS (Canada)</b>	: Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic). <b>CEPA Toxic substances:</b> None of the components are listed. <b>Canadian ARET:</b> None of the components are listed. <b>Canadian NPRI:</b> The following components are listed: n-Hexane; Hexane; Hexane; Hexane; Hexane <b>Alberta Designated Substances:</b> None of the components are listed. <b>Ontario Designated Substances:</b> None of the components are listed. <b>Quebec Designated Substances:</b> None of the components are listed.
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## Section 16. Other information

<b>Canada Label requirements</b>	: Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).
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### Hazardous Material Information System (U.S.A.)

Health	2
Flammability	4
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

### National Fire Protection Association (U.S.A.)

Flammable Liquid Mixture: 1,1-Dimethylcyclopentane / 2-Methyl-2-Pentene / 2-Methylpentane / 2-Methylhexane / 2,2-Dimethylpentane / 2,2-Dimethylbutane / 2,2,3-Trimethylbutane / 2,3-Dimethylbutane / 2,3-Dimethylpentane / 2,4-Dimethylpentane / 3-Ethylpentane / 3-Methylhexane / 3-Methylpentane / 3,3-Dimethyl-1-Pentene / 3,3-Dimethylpentane / Benzene / Cis-1,3-Dimethylcyclopentane / Cis-3-Methyl-2-Pentene / Cyclohexane / Hexane / Isopentane / Methyl Cyclopentane / N-Heptane / N-Pentane / Trans-1,2-Dimethylcyclopentane / Trans-1,3-Dimethylcyclopentane / Trans-2-Hexene / Trans-3-Methyl-2-Pentene

## Section 16. Other information



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

### Procedure used to derive the classification

Classification	Justification
Flam. Liq. 1, H224	Expert judgment
Skin Irrit. 2, H315	Calculation method
Repr. 2, H361 (Fertility)	Calculation method
Repr. 2, H361 (Unborn child)	Calculation method
STOT SE 3, H336	Calculation method
STOT RE 2, H373	Calculation method
Aquatic Acute 3, H402	Calculation method
Aquatic Chronic 2, H411	Calculation method

### History

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**Version** : 0.02

### Key to abbreviations

: 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 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 UN = United Nations

**References** : Not available.

☑ Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.