SAFETY DATA SHEET

Airgas
an Air Liquide company

Flammable Liquefied Gas Mixture: 1-Butene / 1,3-Butadiene / 2,4,4-Trimethy-1-Pentene / 2,4,4-Trimethy-2-Pentene / Acetone / Butyl Methyl Ether / Cis-2-Butene / Diisobutyl Ether / Ethane / Ethyl Benzene / Isobutane / Isobutanol / Isobutyl Tert Butyl Ether / Isobutylene / Isopentane / M-Xylene / Methane / Methanol / N-Butane / N-Pentane / Neopentane / O-Xylene / P-Xylene / Propane / Propylene / Sec Butyl Methyl Ether / Tert Amyl Methyl Ether / Tert Butanol / Toluene / Trans-2-Butene

Section 1. Identification

GHS product identifier : Flammable Liquefied Gas Mixture: 1-Butene / 1,3-Butadiene / 2,4,4-Trimethy-1-Pentene / 2,4,4-Trimethy-2-Pentene / Acetone / Butyl Methyl Ether / Cis-2-Butene / Diisobutyl Ether / Ethane / Ethyl Benzene / Isobutane / Isobutanol / Isobutyl Tert Butyl Ether / Isobutylene / Isopentane / M-Xylene / Methane / Methanol / N-Butane / N-Pentane / Neopentane / O-Xylene / P-Xylene / Propane / Propylene / Sec Butyl Methyl Ether / Tert Amyl Methyl Ether / Tert Butanol / Toluene / Trans-2-Butene

Other means of identification : Not available.

Product use : Synthetic/Analytical chemistry.

SDS # : 018397

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 GASES - Category 1
GASES UNDER PRESSURE - Liquefied gas
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
GERM CELL MUTAGENICITY - Category 1B
CARCINOGENICITY - Category 1
TOXIC TO REPRODUCTION (Fertility) - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
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) - Category 2

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May cause frostbite.
May form explosive mixtures in Air.
Causes serious eye damage.
Causes skin irritation.
May cause genetic defects.

Section 2. Hazards identification

Corrosive to respiratory tract.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May cause drowsiness and dizziness.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

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 only outdoors or in a well-ventilated area. Do not breathe gas. Wash hands thoroughly after handling.

Response : 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: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage : Store locked up. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

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

Hazards not otherwise classified : Liquid can cause burns similar to frostbite.

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 : 018397

Ingredient name	%	CAS number
1-(1,1-dimethylethoxy)-2-methylpropane	1 - 30	33021-02-2
Isobutyl Alcohol	10 - 30	78-83-1
Isobutylene	0.0001 - 20	115-11-7
isobutane	0.0001 - 20	75-28-5
methane	0.0001 - 10	74-82-8
ethane	0.0001 - 10	74-84-0
Trans-2-Butene	0.0001 - 10	624-64-6
N-Butane	0.0001 - 10	106-97-8
toluene	1 - 5	108-88-3
propylene	0.0001 - 5	115-07-1
Propane	0.0001 - 5	74-98-6
p-xylene	1 - 5	106-42-3
Diisobutyl Ether	2 - 5	628-55-7
2,4,4-trimethylpent-2-ene	1.5 - 5	107-40-4

Section 3. Composition/information on ingredients

2,4,4-trimethylpent-1-ene	1 - 5	107-39-1
Cis-2-Butene	0.0001 - 5	590-18-1
1-Butene	0.0001 - 5	106-98-9
o-xylene	0.1 - 0.9999	95-47-6
m-xylene	0.1 - 0.9999	108-38-3
ethylbenzene	0.1 - 0.9999	100-41-4
tert butanol	0.1 - 0.9999	75-65-0
methanol	0.1 - 0.9999	67-56-1
1,3-butadiene	0.1 - 0.9999	106-99-0
tert Amyl Methyl Ether	0.0001 - 0.1	994-05-8
2,2-dimethylpropane	0.0001 - 0.1	463-82-1
n-pentane	0.0001 - 0.1	109-66-0
isopentane	0.0001 - 0.1	78-78-4
butyl methyl ether	0.0001 - 0.1	628-28-4
acetone	0.0001 - 0.1	67-64-1
sec-butyl methyl ether	0.0001 - 0.1	6795-87-5

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

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

Skin contact : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Continue to rinse for at least 10 minutes. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Chemical burns must be treated promptly by a physician. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. 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. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage. Liquid can cause burns similar to frostbite.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.

Section 4. First aid measures

Skin contact : Causes skin irritation. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Can cause central nervous system (CNS) depression. Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

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

Inhalation : Adverse symptoms may include the following:, respiratory tract irritation, coughing, 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:, pain or irritation, redness, blistering may occur, frostbite, reduced fetal weight, increase in fetal deaths, skeletal malformations

Ingestion : Adverse symptoms may include the following:, frostbite, stomach pains, 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

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. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

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. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. 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. Do not breathe gas. 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 : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. 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).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. 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). Contains gas under pressure. 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 gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. 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. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

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 away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
1-(1,1-dimethylethoxy)-2-methylpropane	None.
Isobutyl Alcohol	**ACGIH TLV (United States, 3/2016).** TWA: 50 ppm 8 hours. TWA: 152 mg/m³ 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 50 ppm 8 hours. TWA: 150 mg/m³ 8 hours. **NIOSH REL (United States, 10/2013).** TWA: 50 ppm 10 hours. TWA: 150 mg/m³ 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 100 ppm 8 hours. TWA: 300 mg/m³ 8 hours.
Isobutylene	**ACGIH TLV (United States, 3/2016).** TWA: 250 ppm 8 hours.
isobutane	**NIOSH REL (United States, 4/2013).** TWA: 1900 mg/m³ 10 hours. TWA: 800 ppm 10 hours. **ACGIH TLV (United States, 6/2013).** STEL: 1000 ppm 15 minutes.
methane	Oxygen Depletion [Asphyxiant]
ethane	Oxygen Depletion [Asphyxiant]
Trans-2-Butene	**ACGIH TLV (United States, 3/2016).** TWA: 250 ppm 8 hours.
N-Butane	**NIOSH REL (United States, 10/2013).** TWA: 1900 mg/m³ 10 hours. TWA: 800 ppm 10 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1900 mg/m³ 8 hours. TWA: 800 ppm 8 hours. **ACGIH TLV (United States, 3/2015).** STEL: 1000 ppm 15 minutes.
toluene	**ACGIH TLV (United States, 3/2016).** TWA: 20 ppm 8 hours. **NIOSH REL (United States, 10/2013).** STEL: 560 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 375 mg/m³ 10 hours. TWA: 100 ppm 10 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 560 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 375 mg/m³ 8 hours. TWA: 100 ppm 8 hours. **OSHA PEL Z2 (United States, 2/2013).** AMP: 500 ppm 10 minutes. CEIL: 300 ppm TWA: 200 ppm 8 hours.
propylene	**ACGIH TLV (United States, 1/2005).** TWA: 500 ppm 8 hours. Form: All forms **ACGIH TLV (United States, 3/2016).** TWA: 500 ppm 8 hours.
Propane	**NIOSH REL (United States, 10/2013).** TWA: 1800 mg/m³ 10 hours. TWA: 1000 ppm 10 hours.

Section 8. Exposure controls/personal protection

	OSHA PEL (United States, 2/2013). TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.
p-xylene	**NIOSH REL (United States, 10/2013).** STEL: 655 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 435 mg/m³ 10 hours. TWA: 100 ppm 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 655 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours. **ACGIH TLV (United States, 3/2016).** TWA: 100 ppm 8 hours. TWA: 434 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m³ 15 minutes.
Diisobutyl Ether	None.
2,4,4-trimethylpent-2-ene	None.
2,4,4-trimethylpent-1-ene	None.
Cis-2-Butene	**ACGIH TLV (United States, 3/2016).** TWA: 250 ppm 8 hours.
1-Butene	**ACGIH TLV (United States, 3/2016).** TWA: 250 ppm 8 hours.
o-xylene	**NIOSH REL (United States, 10/2013).** STEL: 655 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 435 mg/m³ 10 hours. TWA: 100 ppm 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 655 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours. **ACGIH TLV (United States, 3/2016).** TWA: 100 ppm 8 hours. TWA: 434 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m³ 15 minutes.
m-xylene	**NIOSH REL (United States, 10/2013).** STEL: 655 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 435 mg/m³ 10 hours. TWA: 100 ppm 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 655 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes.

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	TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours. **ACGIH TLV (United States, 3/2016).** TWA: 100 ppm 8 hours. TWA: 434 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m³ 15 minutes.
ethylbenzene	**ACGIH TLV (United States, 3/2016).** TWA: 20 ppm 8 hours. **NIOSH REL (United States, 10/2013).** STEL: 545 mg/m³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 435 mg/m³ 10 hours. TWA: 100 ppm 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 545 mg/m³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours.
tert butanol	**OSHA PEL 1989 (United States, 3/1989).** TWA: 100 ppm 8 hours. TWA: 300 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 450 mg/m³ 15 minutes. **ACGIH TLV (United States, 3/2016).** TWA: 100 ppm 8 hours. TWA: 303 mg/m³ 8 hours. **NIOSH REL (United States, 10/2013).** TWA: 100 ppm 10 hours. TWA: 300 mg/m³ 10 hours. STEL: 150 ppm 15 minutes. STEL: 450 mg/m³ 15 minutes. **OSHA PEL (United States, 2/2013).** TWA: 100 ppm 8 hours. TWA: 300 mg/m³ 8 hours.
methanol	**ACGIH TLV (United States, 3/2016).** **Absorbed through skin.** STEL: 328 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m³ 8 hours. TWA: 200 ppm 8 hours. **NIOSH REL (United States, 10/2013).** **Absorbed through skin.** STEL: 325 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 260 mg/m³ 10 hours. TWA: 200 ppm 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 260 mg/m³ 8 hours. TWA: 200 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** **Absorbed through skin.** STEL: 325 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 260 mg/m³ 8 hours. TWA: 200 ppm 8 hours.
1,3-butadiene	**ACGIH TLV (United States, 3/2016).**

Section 8. Exposure controls/personal protection

	TWA: 4.4 mg/m³ 8 hours. TWA: 2 ppm 8 hours. **OSHA PEL (United States, 2/2013).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours.
tert Amyl Methyl Ether	**ACGIH TLV (United States, 3/2016).** TWA: 20 ppm 8 hours.
2,2-dimethylpropane	**ACGIH TLV (United States, 3/2016).** TWA: 1000 ppm 8 hours.
n-pentane	**ACGIH TLV (United States, 3/2016).** TWA: 1000 ppm 8 hours. **NIOSH REL (United States, 10/2013).** CEIL: 1800 mg/m³ 15 minutes. CEIL: 610 ppm 15 minutes. TWA: 350 mg/m³ 10 hours. TWA: 120 ppm 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 2950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 2250 mg/m³ 15 minutes. STEL: 750 ppm 15 minutes. TWA: 1800 mg/m³ 8 hours. TWA: 600 ppm 8 hours.
isopentane	**ACGIH TLV (United States, 3/2016).** TWA: 1000 ppm 8 hours.
butyl methyl ether	None.
acetone	**ACGIH TLV (United States, 3/2016).** STEL: 500 ppm 15 minutes. TWA: 250 ppm 8 hours. **NIOSH REL (United States, 10/2013).** TWA: 590 mg/m³ 10 hours. TWA: 250 ppm 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 2400 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 2400 mg/m³ 15 minutes. STEL: 1000 ppm 15 minutes. TWA: 1800 mg/m³ 8 hours. TWA: 750 ppm 8 hours.
sec-butyl methyl ether	None.

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

Section 8. Exposure controls/personal protection

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

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

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. 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.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Liquefied gas]

Color : Not available.

Melting/freezing point : -105°C (-157°F) This is based on data for the following ingredient: Trans-2-Butene. Weighted average: -156.78°C (-250.2°F)

Critical temperature : Lowest known value: -82.45°C (-116.4°F) (methane).

Odor : Not available.

Odor threshold : Not available.

pH : Not available.

Flash point : Not available.

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Highest known value: 2.1 (Air = 1) (N-Butane). Weighted average: 1.7 (Air = 1)

Gas Density (lb/ft ^{3}) : Weighted average: 0.19

Relative density : Not applicable.

Section 9. Physical and chemical properties

Solubility : Not available.

Solubility in water : Not available.

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

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : 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.

Incompatible materials : Oxidizers

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

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
Isobutyl Alcohol	LC50 Inhalation Vapor	Rat	19200 mg/m³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
Isobutylene	LC50 Inhalation Vapor	Rat	550000 mg/m³	4 hours
isobutane	LC50 Inhalation Vapor	Rat	658000 mg/m³	4 hours
N-Butane	LC50 Inhalation Vapor	Rat	658000 mg/m³	4 hours
toluene	LC50 Inhalation Vapor	Rat	28830 ppm	1 hours
	LC50 Inhalation Vapor	Rat	49 g/m³	4 hours
p-xylene	LC50 Inhalation Gas.	Rat	9100 ppm	1 hours
	LC50 Inhalation Gas.	Rat	4550 ppm	4 hours
	LD50 Oral	Rat	3910 mg/kg	-
o-xylene	LC50 Inhalation Gas.	Mouse	8736 ppm	1 hours
	LC50 Inhalation Gas.	Rat	13400 ppm	1 hours
	LD50 Oral	Rat	3567 mg/kg	-
m-xylene	LD50 Oral	Rat	4988 mg/kg	-
ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
tert butanol	LC50 Inhalation Gas.	Rat	20000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	14100 ppm	4 hours
	LD50 Oral	Rat	2733 mg/kg	-
methanol	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours

Section 11. Toxicological information

	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
1,3-butadiene	LC50 Inhalation Gas.	Rat	128000 ppm	4 hours
tert Amyl Methyl Ether	LD50 Oral	Rat	1602 mg/kg	-
n-pentane	LC50 Inhalation Vapor	Rat	364 g/m³	4 hours
isopentane	LC50 Inhalation Vapor	Rat	280000 mg/m³	4 hours
acetone	LC50 Inhalation Vapor	Rat	59528 ppm	1 hours
	LD50 Oral	Rat	5800 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	870 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Mild irritant	Pig	-	24 hours 250 microliters	-
	Skin - Mild irritant	Rabbit	-	435 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-
m-xylene	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 10 Micrograms	-
ethylbenzene	Eyes - Severe irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
tert butanol	Eyes - Severe irritant	Rabbit	-	24 hours 100 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 microliters	-
methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	40 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
tert Amyl Methyl Ether	Eyes - Severe irritant	Rabbit	-	24 hours 100 microliters	-
	Skin - Severe irritant	Rabbit	-	4 hours 500 microliters	-
acetone	Eyes - Mild irritant	Human	-	186300 parts per million	-
	Eyes - Mild irritant	Rabbit	-	10 microliters	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Severe irritant	Rabbit	-	20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	395 milligrams	-

Sensitization

Not available.

Section 11. Toxicological information

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
p-xylene	-	3	-
propylene	-	3	-
toluene	-	3	-
1,3-butadiene	-	1	Known to be a human carcinogen.
ethylbenzene	-	2B	-
m-xylene	-	3	-
o-xylene	-	3	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Isobutyl Alcohol	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
toluene	Category 3	Not applicable.	Narcotic effects
tert butanol	Category 3	Not applicable.	Respiratory tract irritation
methanol	Category 1	Not determined	respiratory tract
tert Amyl Methyl Ether	Category 3	Not applicable.	Narcotic effects
n-pentane	Category 3	Not applicable.	Narcotic effects
isopentane	Category 3	Not applicable.	Narcotic effects
acetone	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
toluene	Category 2	Not determined	Not determined

Aspiration hazard

Name	Result
ethylbenzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye damage. Liquid can cause burns similar to frostbite.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.

Skin contact : Causes skin irritation. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion : Can cause central nervous system (CNS) depression. Ingestion of liquid can cause burns similar to frostbite.

Section 11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

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

Inhalation : Adverse symptoms may include the following:, respiratory tract irritation, coughing, 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:, pain or irritation, redness, blistering may occur, frostbite, reduced fetal weight, increase in fetal deaths, skeletal malformations

Ingestion : Adverse symptoms may include the following:, frostbite, stomach pains, 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 : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : May cause genetic defects.

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

Route	ATE value
Dermal Inhalation (gases) Inhalation (vapors)	7233.1 mg/kg 87996.5 ppm 61.89 mg/l

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Isobutyl Alcohol	Acute LC50 600 mg/l Marine water	Crustaceans - Artemia salina	48 hours
	Acute LC50 1030000 to 1200000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 1330000 to 1520000 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 4000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
toluene	Acute EC50 12500 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 11600 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours

Section 12. Ecological information

	Acute EC50 6000 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 5500 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
p-xylene	Acute EC50 3200 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 4730 to 6310 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 2 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
o-xylene	Acute EC50 4700 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1390 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 38000 µg/l Marine water	Crustaceans - Cancer magister - Zoea	48 hours
	Acute LC50 7600 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
m-xylene	Acute EC50 4900 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 5770 to 7640 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute LC50 23600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 8400 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
ethylbenzene	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 2930 to 4400 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 40000 µg/l Marine water	Crustaceans - Cancer magister - Zoea	48 hours
	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
tert butanol	Acute EC50 5504000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 6410000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
methanol	Acute EC50 16.912 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 3289 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 290 mg/l Fresh water	Fish - Danio rerio - Egg	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours
tert Amyl Methyl Ether	Acute EC50 >100000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 >100000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 >100000 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC >100000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
acetone	Acute EC50 20.565 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 6000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 10000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 5600 ppm Fresh water	Fish - Poecilia reticulata	96 hours
	Chronic NOEC 4.95 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.016 ml/L Fresh water	Crustaceans - Daphniidae	21 days
	Chronic NOEC 0.1 ml/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC 5 µg/l Marine water	Fish - Gasterosteus aculeatus - Larvae	42 days

Persistence and degradability

Section 12. Ecological information

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
1-(1,1-dimethylethoxy) -2-methylpropane	2.83	-	low
Isobutyl Alcohol	1	-	low
Isobutylene	2.34	-	low
isobutane	2.8	-	low
methane	1.09	-	low
ethane	1.09	-	low
Trans-2-Butene	2.31	-	low
N-Butane	2.89	-	low
toluene	2.73	90	low
propylene	1.77	-	low
Propane	1.09	-	low
p-xylene	3.15	8.1 to 25.9	low
Diisobutyl Ether	2.78	-	low
2,4,4-trimethylpent-1-ene	4.55	602.56	high
Cis-2-Butene	2.33	-	low
1-Butene	2.4	-	low
o-xylene	3.12	8.1 to 25.9	low
m-xylene	3.2	8.1 to 25.9	low
ethylbenzene	3.6	-	low
tert butanol	0.4	5.01	low
methanol	-0.77	<10	low
1,3-butadiene	1.99	10	low
tert Amyl Methyl Ether	1.55	-	low
2,2-dimethylpropane	3.11	-	low
n-pentane	3.45	171	low
isopentane	3	171	low
butyl methyl ether	1.66	-	low
acetone	-0.23	-	low

Mobility in soil

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

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or 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. Empty Airgas-owned pressure vessels should be returned to Airgas. 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. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

United States - RCRA Toxic hazardous waste "U" List

Section 13. Disposal considerations

Ingredient	CAS #	Status	Reference number
Isobutyl alcohol (I,T); 1-Propanol, 2-methyl- (I,T)	78-83-1	Listed	U140
Toluene; Benzene, methyl-	108-88-3	Listed	U220
Xylene	106-42-3	Listed	U239

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN3161	UN3161	UN3161	UN3161	UN3161
UN proper shipping name	Liquefied gas, flammable n.o.s. (1-(1, 1-dimethylethoxy) -2-methylpropane, Isobutyl Alcohol)	Liquefied gas, flammable n.o.s. (1-(1, 1-dimethylethoxy) -2-methylpropane, Isobutyl Alcohol)	Liquefied gas, flammable n.o.s. (1-(1, 1-dimethylethoxy) -2-methylpropane, Isobutyl Alcohol)	Liquefied gas, flammable n.o.s. (1-(1, 1-dimethylethoxy) -2-methylpropane, Isobutyl Alcohol)	Liquefied gas, flammable n.o.s. (1-(1, 1-dimethylethoxy) -2-methylpropane, Isobutyl Alcohol)
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 1000.1 lbs / 454.05 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2). **Explosive Limit and Limited Quantity Index** 0.125 **ERAP Index** 3000 **Passenger Carrying Ship Index** Forbidden **Passenger Carrying Road or Rail Index** Forbidden	-	-	-

"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**: p-xylene; 2,4,4-trimethylpent-2-ene; 2,4,4-trimethylpent-1-ene; Tert Butanol; pentane; tert amyl methyl ether

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): Not determined.

Clean Water Act (CWA) 307: toluene; ethylbenzene

Clean Water Act (CWA) 311: toluene; p-xylene; o-xylene; m-xylene; ethylbenzene

Clean Air Act (CAA) 112 regulated flammable substances: Isobutane; isobutylene; N-Butane; methane; ethane; Trans-2-Butene; 1-butene; Cis-2-Butene; propylene; propane

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) : Listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Sudden release of pressure
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
1-(1,1-dimethylethoxy) -2-methylpropane	1 - 30	Yes.	No.	No.	No.	No.
Isobutyl Alcohol	10 - 30	Yes.	No.	No.	Yes.	No.
Isobutylene	0.0001 - 20	Yes.	Yes.	No.	No.	No.
isobutane	0.0001 - 20	Yes.	Yes.	No.	No.	No.
methane	0.0001 - 10	Yes.	Yes.	No.	No.	No.
ethane	0.0001 - 10	Yes.	Yes.	No.	No.	No.
Trans-2-Butene	0.0001 - 10	Yes.	Yes.	No.	No.	No.
N-Butane	0.0001 - 10	Yes.	Yes.	No.	No.	No.
toluene	1 - 5	Yes.	No.	No.	Yes.	Yes.
propylene	0.0001 - 5	Yes.	Yes.	No.	No.	No.
Propane	0.0001 - 5	Yes.	Yes.	No.	No.	No.
p-xylene	1 - 5	Yes.	No.	No.	Yes.	No.
2,4,4-trimethylpent-2-ene	1.5 - 5	Yes.	No.	No.	No.	No.
2,4,4-trimethylpent-1-ene	1 - 5	Yes.	No.	No.	No.	No.
Cis-2-Butene	0.0001 - 5	Yes.	Yes.	No.	No.	No.
1-Butene	0.0001 - 5	Yes.	Yes.	No.	No.	No.
o-xylene	0.1 - 0.9999	Yes.	No.	No.	Yes.	No.
m-xylene	0.1 - 0.9999	Yes.	No.	No.	Yes.	No.
ethylbenzene	0.1 - 0.9999	Yes.	No.	No.	Yes.	No.

Section 15. Regulatory information

tert butanol	0.1 - 0.9999	Yes.	No.	No.	Yes.	No.
methanol	0.1 - 0.9999	Yes.	No.	No.	Yes.	No.
1,3-butadiene	0.1 - 0.9999	Yes.	Yes.	Yes.	Yes.	Yes.
tert Amyl Methyl Ether	0.0001 - 0.1	Yes.	No.	No.	Yes.	No.
2,2-dimethylpropane	0.0001 - 0.1	Yes.	Yes.	No.	No.	No.
n-pentane	0.0001 - 0.1	Yes.	No.	No.	Yes.	No.
isopentane	0.0001 - 0.1	Yes.	No.	No.	Yes.	No.
butyl methyl ether	0.0001 - 0.1	Yes.	No.	No.	No.	No.
acetone	0.0001 - 0.1	Yes.	No.	No.	Yes.	No.
sec-butyl methyl ether	0.0001 - 0.1	Yes.	No.	No.	No.	No.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	p-xylene propylene toluene 1,3-butadiene ethylbenzene	106-42-3 115-07-1 108-88-3 106-99-0 100-41-4	1 - 5 0.0001 - 5 1 - 5 0.1 - 0.9999 0.1 - 0.9999
Supplier notification	p-xylene propylene toluene 1,3-butadiene ethylbenzene	106-42-3 115-07-1 108-88-3 106-99-0 100-41-4	1 - 5 0.0001 - 5 1 - 5 0.1 - 0.9999 0.1 - 0.9999

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: ISOBUTYL ALCOHOL; ISOBUTANE; 2-METHYLPROPENE; BUTANE; METHANE; MARSH GAS; ETHANE; 2-BUTENE-TRANS; 1-BUTENE; 2-BUTENE-CIS; TOLUENE; METHYLBENZENE; PROPYLENE; PROPENE; PROPANE; P-XYLENE; P-DIMETHYBENZENE; 2,4,4-TRIMETHYL-2-PENTENE; 2,4,4-TRIMETHYL-1-PENTENE

New York : The following components are listed: Isobutanol; 1-Propanol, 2-methyl-; Toluene; p-Xylene; Ethylbenzene

New Jersey : The following components are listed: ISOBUTYL ALCOHOL; 1-PROPANOL, 2-METHYL-; Isobutane; PROPANE, 2-METHYL-; ISOBUTYLENE; 1-PROPENE, 2-METHYL-; BUTANE; METHANE; ETHANE; 2-BUTENE-trans; 2-BUTENE, (2E)-; 1-BUTENE; 2-BUTENE-cis; 2-BUTENE, (2Z)-; TOLUENE; BENZENE, METHYL-; PROPYLENE; 1-PROPENE; PROPANE; p-XYLENE; BENZENE, 1,4-DIMETHYL-; 1, 3-BUTADIENE; BIETHYLENE; ETHYL BENZENE; BENZENE, ETHYL-

Pennsylvania : The following components are listed: 1-PROPANOL, 2-METHYL-; PROPANE, 2-METHYL-; 1-PROPENE, 2-METHYL-; BUTANE; METHANE; ETHANE; 2-BUTENE, (E)-; 1-BUTENE; 2-BUTENE, (Z)-; BENZENE, METHYL-; 1-PROPENE; PROPANE; BENZENE, 1,4-DIMETHYL-; 2-PENTENE, 2,4,4-TRIMETHYL-; 1-PENTENE, 2,4, 4-TRIMETHYL-; 1,3-BUTADIENE; BENZENE, ETHYL-

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level

Section 15. Regulatory information

toluene	No.	Yes.	No.	7000 µg/day (ingestion)
1,3-butadiene	Yes.	Yes.	Yes.	No.
methanol	No.	Yes.	No.	23000 µg/day (ingestion) 47000 µg/day (inhalation)
ethylbenzene	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.
tert amyl methyl ether	No.	Yes.	No.	No.

International regulations

International lists

National inventory

Australia : Not determined.

Canada : Not determined.

China : Not determined.

Europe : Not determined.

Japan : Not determined.

Malaysia : Not determined.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : Not determined.

Canada

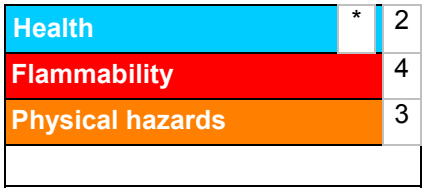
WHMIS (Canada) : Class A: Compressed gas.
Class B-1: Flammable gas.
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

CEPA Toxic substances: The following components are listed: Methane; Volatile organic compounds; 1,3-Butadiene
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: i-Butyl alcohol; Butane (all isomers); Butene (all isomers); Butane (all isomers); Volatile organic compounds; Volatile organic compounds; Butene (all isomers); Butene (all isomers); Butene (all isomers); Toluene; Propylene; Propane; Xylene (all isomers)
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.
Class B-1: Flammable gas.
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Hazardous Material Information System (U.S.A.)



Section 16. Other information

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.)

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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. Gas 1, H220	On basis of test data
Press. Gas Liq. Gas, H280	On basis of test data
Skin Irrit. 2, H315	Expert judgment
Eye Dam. 1, H318	Expert judgment
Muta. 1B, H340	Calculation method
Carc. 1, H350	Calculation method
Repr. 2, H361 (Fertility)	Calculation method
Repr. 2, H361 (Unborn child)	Calculation method
STOT SE 3, H335	Calculation method
STOT SE 3, H336	Expert judgment
STOT RE 2, H373	Calculation method

History

Date of printing : 9/7/2016

Date of issue/Date of revision : 9/7/2016

Date of previous issue : No previous validation

Version : 0.01

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

Section 16. Other information

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.