

**SECTION 1: IDENTIFICATION****1.1. Product Identifier****Product Form:** Mixture**Product Name:** Butane Plus**Synonyms:** C4 +**1.2. Intended Use of the Product****Use of the substance/mixture:** Hydrocarbon**1.3. Name, Address, and Telephone of the Responsible Party****Company**

MarkWest Energy Partners, L.P.

1515 Arapahoe Street

Tower 1, Suite 1600

Denver, Colorado 80202-2126

800-730-8388

<http://www.markwest.com/>**1.4. Emergency Telephone Number****Emergency Number** : 800-730-8388, 800-424-9300 (CHEMTREC)**SECTION 2: HAZARDS IDENTIFICATION****2.1. Classification of the Substance or Mixture****Classification (GHS-US)**

Simple Asphy

Flam. Gas 1 H220

Liquefied gas H280

Skin Irrit. 2 H315

Eye Irrit. 2A H319

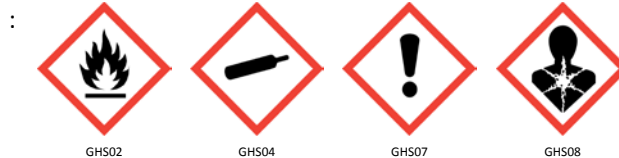
Repr. 2 H361

STOT RE 2 H373

Aquatic Acute 3 H402

Aquatic Chronic 3 H412

Full text of H-phrases: see section 16

**2.2. Label Elements****GHS-US Labeling****Hazard Pictograms (GHS-US)****Signal Word (GHS-US)**

: Danger

**Hazard Statements (GHS-US)**

- : H220 - Extremely flammable gas.
  - H280 - Contains gas under pressure; may explode if heated.
  - H315 - Causes skin irritation.
  - H319 - Causes serious eye irritation.
  - H361 - Suspected of damaging fertility or the unborn child.
  - H373 - May cause damage to organs through prolonged or repeated exposure.
  - H380 - May displace oxygen and cause rapid suffocation.
  - H402 - Harmful to aquatic life.
  - H412 - Harmful to aquatic life with long lasting effects.
- Precautionary Statements (GHS-US)** :
- P201 - Obtain special instructions before use.
  - P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking.
  - P260 - Do not breathe gas, mist, spray, vapors.
  - P264 - Wash hands, forearms, and exposed areas thoroughly after handling.
  - P273 - Avoid release to the environment.
  - P280 - Wear eye protection, protective clothing, protective gloves.
  - P302+P352 - IF ON SKIN: Wash with plenty of water.
  - P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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P308+P313 - If exposed or concerned: Get medical advice/attention.  
P321 - Specific treatment (see Section 4).  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P362 - Take off contaminated clothing and wash before reuse.  
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
P381 - Eliminate all ignition sources if safe to do so.  
P403 - Store in a well-ventilated place.  
P405 - Store locked up.  
P410+P403 - Protect from sunlight. Store in a well-ventilated place.  
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

### 2.3. Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Asphyxiant gas, can be fatal. May cause damage to the blood, central nervous system, and cardiovascular system. High concentrations of gas can cause unconsciousness and death. Being under the influence of alcohol may enhance the effects of this product.

### 2.4. Unknown Acute Toxicity (GHS-US)

No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product Identifier	%	Classification (GHS-US)
Butane	(CAS No) 106-97-8	30 - 35	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
Isobutane	(CAS No) 75-28-5	25 - 35	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
3-Methyl-1-butene	(CAS No) 563-45-1	12	Simple Asphy Flam. Liq. 1, H224 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335 Asp. Tox. 1, H304
Pentane	(CAS No) 109-66-0	8	Flam. Liq. 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
2-Methylpentane	(CAS No) 107-83-5	3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
3-Methylpentane	(CAS No) 96-14-0	3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411

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Hexane	(CAS No) 110-54-3	2	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
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Full text of H-phrases: see section 16

### SECTION 4: FIRST AID MEASURES

#### 4.1. Description of First Aid Measures

**First-aid Measures General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

**First-aid Measures After Inhalation:** When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.

**First-aid Measures After Skin Contact:** Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation persists. Thaw frosted parts with lukewarm water. Do not rub affected area.

**First-aid Measures After Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.

**First-aid Measures After Ingestion:** Rinse mouth. Do NOT induce vomiting. Get immediate medical attention.

#### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms/Injuries:** Causes skin irritation. Causes serious eye irritation. Natural Gas is an asphyxiant. Lack of oxygen can be fatal. May cause frostbite on contact with the liquid.

**Symptoms/Injuries After Inhalation:** Gas can be toxic as a simple asphyxiant by displacing oxygen from the air. Asphyxia by lack of oxygen: risk of death. May cause drowsiness or dizziness.

**Symptoms/Injuries After Skin Contact:** Redness, pain, swelling, itching, burning, dryness, and dermatitis. Contact with the liquid may cause cold burns/frostbite.

**Symptoms/Injuries After Eye Contact:** Redness, pain, swelling, itching, burning, tearing, and blurred vision. Contact with the liquefied gas causes frostbite.

**Symptoms/Injuries After Ingestion:** Ingestion is not considered a potential route of exposure. Non-irritating, but solid and liquid forms of this material and pressurized gas may cause freeze burns.

**Chronic Symptoms:** Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

#### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

### SECTION 5: FIRE-FIGHTING MEASURES

#### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** Leaking gas fire, do not fight fire unless leak can be stopped safely. Foam, dry chemical, carbon dioxide, water spray, fog

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

#### 5.2. Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Extremely flammable gas.

**Explosion Hazard:** May form flammable/explosive vapor-air mixture. Heating may cause an explosion. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

**Reactivity:** Hazardous reactions will not occur under normal conditions.

#### 5.3. Advice for Firefighters

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leaking gas fire, eliminate all ignition sources if safe to do so. Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Other Information:** Do not allow run-off from fire fighting to enter drains or water courses.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Use special care to avoid static electric charges. Eliminate every possible source of ignition. Keep away from heat/sparks/open flames/hot surfaces - No smoking. Avoid breathing (gas, vapors, mist, spray). Use only outdoors or in a well-ventilated area. Ruptured cylinders may rocket. Do not allow product to spread into the environment.

#### 6.1.1. For Non-emergency Personnel

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

#### 6.1.2. For Emergency Responders

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Ventilate area.

### 6.2. Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

### 6.3. Methods and Material for Containment and Cleaning Up

**For Containment:** Notify authorities if liquid enters sewers or public waters. Use only non-sparking tools.

**Methods for Cleaning Up:** Clear up spills immediately and dispose of waste safely. Isolate area until gas has dispersed. Use water spray to disperse vapors. For water based spills contact appropriate authorities and abide by local regulations for hydrocarbon spills into waterways. Contact competent authorities after a spill.

### 6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for Safe Handling

**Additional Hazards When Processed:** Handle empty containers with care because residual vapors are flammable. Extremely flammable gas. Do not pressurize, cut, or weld containers. Do not puncture or incinerate container. Liquid gas can cause frost-type burns.

**Precautions for Safe Handling:** Keep away from heat, sparks, open flames, hot surfaces. - No smoking. Avoid breathing gas, spray. Use only outdoors or in a well-ventilated area.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product.

### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Proper grounding procedures to avoid static electricity should be followed. Comply with applicable regulations. Use explosion proof equipment.

**Storage Conditions:** Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep in fireproof place. Store in a well-ventilated place. Keep container tightly closed. Keep/Store away from extremely high or low temperatures, ignition sources, direct sunlight, incompatible materials. Store in original container.

**Incompatible Products:** Strong acids, strong bases, strong oxidizers.

### 7.3. Specific End Use(s)

Hydrocarbon.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), or OSHA (PEL).

Butane (106-97-8)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (ppm)	800 ppm
Isobutane (75-28-5)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (ppm)	800 ppm
Pentane (109-66-0)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	350 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (ppm)	120 ppm

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<b>USA NIOSH</b>	NIOSH REL (ceiling) (mg/m <sup>3</sup> )	1800 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL (ceiling) (ppm)	610 ppm
<b>USA IDLH</b>	US IDLH (ppm)	1500 ppm (10% LEL)
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	2950 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) (ppm)	1000 ppm
<b>Hexane (110-54-3)</b>		
<b>USA ACGIH</b>	ACGIH TWA (ppm)	50 ppm
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	180 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL (TWA) (ppm)	50 ppm
<b>USA IDLH</b>	US IDLH (ppm)	1100 ppm (10% LEL)
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1800 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) (ppm)	500 ppm

### 8.2. Exposure Controls

#### Appropriate Engineering Controls

: Gas detectors should be used when flammable gases/vapors may be released. Ensure adequate ventilation, especially in confined areas. Proper grounding procedures to avoid static electricity should be followed. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use explosion-proof equipment.

#### Personal Protective Equipment

: Protective goggles. Protective clothing. Respiratory protection of the dependent type. Insulated gloves.



#### Materials for Protective Clothing

: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

#### Hand Protection

: Wear chemically resistant protective gloves. Insulated gloves.

#### Eye Protection

: Chemical goggles or face shield.

#### Respiratory Protection

: Use a NIOSH-approved self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

#### Thermal Hazard Protection

: Wear suitable protective clothing.

#### Other Information

: When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

Physical State	: Gas
Appearance	: Colorless gas (Clear liquid under pressure)
Odor	: Hydrocarbon
Odor Threshold	: No data available
pH	: No data available
Evaporation Rate	: No data available
Melting Point	: No data available
Freezing Point	: No data available
Boiling Point	: 53.6 °F (12 °C)
Flash Point	: -76 °F (-60 °C)
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: Extremely flammable gas
Vapor Pressure	: 240 mm Hg at 20 °C
Relative Vapor Density at 20 °C	: ≈ 2 (Air=1)
Relative Density	: No data available
Specific Gravity	: ≈ 0.58 (Water=1)
Solubility	: Water: Negligible)
Partition Coefficient: N-Octanol/Water	: No data available

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**Viscosity** : No data available  
**Lower Flammable Limit** : 1.6 %  
**Upper Flammable Limit** : 8.4 %

**9.2. Other Information** No additional information available

## SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** Hazardous reactions will not occur under normal conditions.  
**10.2. Chemical Stability:** Extremely flammable gas.  
**10.3. Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.  
**10.4. Conditions to Avoid:** Direct sunlight, extremely high or low temperatures, ignition sources, combustible materials, incompatible materials.  
**10.5. Incompatible Materials:** Strong acids, strong bases, strong oxidizers, halogens, chlorine.  
**10.6. Hazardous Decomposition Products:** Carbon oxides (CO, CO<sub>2</sub>), hydrocarbons.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information On Toxicological Effects

**Acute Toxicity:** Not classified

<b>Butane (106-97-8)</b>	
<b>LC50 Inhalation Rat</b>	30957 mg/m <sup>3</sup> (Exposure time: 4 h)
<b>Isobutane (75-28-5)</b>	
<b>LC50 Inhalation Rat</b>	658 mg/l/4h
<b>Pentane (109-66-0)</b>	
<b>LD50 Dermal Rabbit</b>	3000 mg/kg
<b>LC50 Inhalation Rat</b>	364 g/m <sup>3</sup> (Exposure time: 4 h)
<b>Hexane (110-54-3)</b>	
<b>LD50 Dermal Rabbit</b>	3000 mg/kg
<b>LC50 Inhalation Rat</b>	48000 ppm/4h

**Skin Corrosion/Irritation:** Causes skin irritation.

**Serious Eye Damage/Irritation:** Causes serious eye irritation.

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Reproductive Toxicity:** Suspected of damaging fertility or the unborn child.

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** May cause damage to organs through prolonged or repeated exposure.

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Gas can be toxic as a simple asphyxiant by displacing oxygen from the air. Asphyxia by lack of oxygen: risk of death. May cause drowsiness or dizziness.

**Symptoms/Injuries After Skin Contact:** Redness, pain, swelling, itching, burning, dryness, and dermatitis. Contact with the liquid may cause cold burns/frostbite.

**Symptoms/Injuries After Eye Contact:** Redness, pain, swelling, itching, burning, tearing, and blurred vision. Contact with the liquefied gas causes frostbite.

**Symptoms/Injuries After Ingestion:** Ingestion is not considered a potential route of exposure. Non-irritating, but solid and liquid forms of this material and pressurized gas may cause freeze burns.

**Chronic Symptoms:** Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

**Ecology - General** : Harmful to aquatic life with long lasting effects.

<b>Pentane (109-66-0)</b>	
<b>LC50 Fish 1</b>	9.87 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
<b>EC50 Daphnia 1</b>	9.74 mg/l (Exposure time: 48 h - Species: Daphnia magna)
<b>LC 50 Fish 2</b>	11.59 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
<b>Hexane (110-54-3)</b>	
<b>LC50 Fish 1</b>	2.1 - 2.98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

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## 12.2. Persistence and Degradability

Butane Plus	
Persistence and Degradability	Product is biodegradable.

## 12.3. Bioaccumulative Potential

Butane Plus	
Bioaccumulative Potential	Not expected to bioaccumulate.
Butane (106-97-8)	
Log Pow	2.89
Isobutane (75-28-5)	
BCF fish 1	1.57 - 1.97
Log Pow	2.88 (at 20 °C)
Pentane (109-66-0)	
Log Pow	3.39

12.4. Mobility in Soil No additional information available

## 12.5. Other Adverse Effects

Other Adverse Effects : Can cause frost damage to vegetation.

Other Information : Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, and international regulations.

**Additional Information:** Handle empty containers with care because residual vapors are flammable. Empty gas cylinders should be returned to the vendor for recycling or refilling.

## SECTION 14: TRANSPORT INFORMATION

### 14.1. In Accordance with DOT

Proper Shipping Name : PETROLEUM GASES, LIQUEFIED  
Hazard Class : 2.1  
Identification Number : UN1075  
Label Codes : 2.1  
ERG Number : 115



### 14.2. In Accordance with IMDG

Proper Shipping Name : PETROLEUM GASES, LIQUEFIED  
Hazard Class : 2  
Identification Number : UN1075  
Label Codes : 2.1  
EmS-No. (Fire) : F-D  
EmS-No. (Spillage) : S-U



### 14.3. In Accordance with IATA

Proper Shipping Name : PETROLEUM GASES, LIQUEFIED  
Identification Number : UN1075  
Hazard Class : 2  
Label Codes : 2.1  
ERG Code (IATA) : 10L



## SECTION 15: REGULATORY INFORMATION

### 15.1 US Federal Regulations

Butane Plus	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard Sudden release of pressure hazard
Butane (106-97-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

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<b>Isobutane (75-28-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Pentane (109-66-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>EPA TSCA Regulatory Flag</b>	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
<b>3-Methyl-1-butene (563-45-1)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Hexane (110-54-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on United States SARA Section 313	
<b>SARA Section 313 - Emission Reporting</b>	1.0 %
<b>2-Methylpentane (107-83-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>3-Methylpentane (96-14-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

## 15.2 US State Regulations

<b>Butane (106-97-8)</b>
<p>U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)</p> <p>U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)</p> <p>U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities</p> <p>U.S. - Delaware - Accidental Release Prevention Regulations - Threshold Quantities</p> <p>U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities</p> <p>U.S. - Maine - Chemicals of High Concern</p> <p>U.S. - Massachusetts - Oil &amp; Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1</p> <p>U.S. - Massachusetts - Oil &amp; Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2</p> <p>U.S. - Massachusetts - Oil &amp; Hazardous Material List - Reportable Quantity</p> <p>U.S. - Massachusetts - Oil &amp; Hazardous Material List - Soil Reportable Concentration - Reporting Category 1</p> <p>U.S. - Massachusetts - Oil &amp; Hazardous Material List - Soil Reportable Concentration - Reporting Category 2</p> <p>RTK - U.S. - Massachusetts - Right To Know List</p> <p>U.S. - Michigan - Occupational Exposure Limits - TWAs</p> <p>U.S. - Minnesota - Chemicals of High Concern</p> <p>U.S. - Minnesota - Hazardous Substance List</p> <p>U.S. - Minnesota - Permissible Exposure Limits - TWAs</p> <p>U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances</p> <p>U.S. - New Jersey - Environmental Hazardous Substances List</p> <p>RTK - U.S. - New Jersey - Right to Know Hazardous Substance List</p> <p>U.S. - New Jersey - Special Health Hazards Substances List</p> <p>U.S. - New Jersey - TCPA - Extraordinarily Hazardous Substances (EHS)</p> <p>U.S. - New York - Occupational Exposure Limits - TWAs</p> <p>U.S. - Ohio - Accidental Release Prevention - Threshold Quantities</p> <p>U.S. - Oregon - Permissible Exposure Limits - TWAs</p> <p>RTK - U.S. - Pennsylvania - RTK (Right to Know) List</p> <p>U.S. - Tennessee - Occupational Exposure Limits - TWAs</p> <p>U.S. - Texas - Effects Screening Levels - Long Term</p> <p>U.S. - Texas - Effects Screening Levels - Short Term</p> <p>U.S. - Vermont - Permissible Exposure Limits - TWAs</p> <p>U.S. - Washington - Permissible Exposure Limits - STELs</p> <p>U.S. - Washington - Permissible Exposure Limits - TWAs</p>
<b>Isobutane (75-28-5)</b>
<p>U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities</p> <p>U.S. - Delaware - Accidental Release Prevention Regulations - Threshold Quantities</p> <p>U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities</p> <p>U.S. - Maine - Chemicals of High Concern</p> <p>U.S. - Massachusetts - Oil &amp; Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1</p>



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U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2  
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2  
RTK - U.S. - Massachusetts - Right To Know List  
U.S. - Minnesota - Chemicals of High Concern  
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances  
U.S. - New Jersey - Environmental Hazardous Substances List  
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - New Jersey - Special Health Hazards Substances List  
U.S. - New Jersey - TCPA - Extraordinarily Hazardous Substances (EHS)  
U.S. - Ohio - Accidental Release Prevention - Threshold Quantities  
RTK - U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Texas - Effects Screening Levels - Long Term  
U.S. - Texas - Effects Screening Levels - Short Term

### **Pentane (109-66-0)**

U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)  
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)  
U.S. - Delaware - Accidental Release Prevention Regulations - Threshold Quantities  
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities  
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations  
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)  
U.S. - Idaho - Occupational Exposure Limits - TWAs  
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1  
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2  
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2  
RTK - U.S. - Massachusetts - Right To Know List  
U.S. - Michigan - Occupational Exposure Limits - STELs  
U.S. - Michigan - Occupational Exposure Limits - TWAs  
U.S. - Minnesota - Hazardous Substance List  
U.S. - Minnesota - Permissible Exposure Limits - STELs  
U.S. - Minnesota - Permissible Exposure Limits - TWAs  
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances  
U.S. - New Jersey - Environmental Hazardous Substances List  
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - New Jersey - Special Health Hazards Substances List  
U.S. - New Jersey - TCPA - Extraordinarily Hazardous Substances (EHS)  
U.S. - New York - Occupational Exposure Limits - TWAs  
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour  
U.S. - Ohio - Accidental Release Prevention - Threshold Quantities  
U.S. - Oregon - Permissible Exposure Limits - TWAs  
RTK - U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Tennessee - Occupational Exposure Limits - STELs  
U.S. - Tennessee - Occupational Exposure Limits - TWAs  
U.S. - Texas - Effects Screening Levels - Long Term  
U.S. - Texas - Effects Screening Levels - Short Term  
U.S. - Vermont - Permissible Exposure Limits - STELs  
U.S. - Vermont - Permissible Exposure Limits - TWAs  
U.S. - Washington - Permissible Exposure Limits - STELs  
U.S. - Washington - Permissible Exposure Limits - TWAs

### **3-Methyl-1-butene (563-45-1)**

U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities  
U.S. - Delaware - Accidental Release Prevention Regulations - Threshold Quantities  
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities  
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1

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U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2  
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2  
RTK - U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances  
U.S. - New Jersey - Environmental Hazardous Substances List  
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - New Jersey - Special Health Hazards Substances List  
U.S. - New Jersey - TCEA - Extraordinarily Hazardous Substances (EHS)  
U.S. - Ohio - Accidental Release Prevention - Threshold Quantities  
RTK - U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Texas - Effects Screening Levels - Long Term  
U.S. - Texas - Effects Screening Levels - Short Term

### Hexane (110-54-3)

U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic  
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)  
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)  
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)  
U.S. - Connecticut - Volatile Substances  
U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities  
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities  
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations  
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)  
U.S. - Idaho - Occupational Exposure Limits - TWAs  
U.S. - Illinois - Toxic Air Contaminants  
U.S. - Louisiana - Reportable Quantity List for Pollutants  
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants  
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1  
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2  
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2  
RTK - U.S. - Massachusetts - Right To Know List  
U.S. - Massachusetts - Toxics Use Reduction Act  
U.S. - Michigan - Occupational Exposure Limits - TWAs  
U.S. - Michigan - Polluting Materials List  
U.S. - Minnesota - Chemicals of High Concern  
U.S. - Minnesota - Groundwater Health Risk Limits  
U.S. - Minnesota - Hazardous Substance List  
U.S. - Minnesota - Permissible Exposure Limits - TWAs  
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour  
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual  
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances  
U.S. - New Jersey - Environmental Hazardous Substances List  
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - New Jersey - Special Health Hazards Substances List  
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria  
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)  
U.S. - New York - Occupational Exposure Limits - TWAs  
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances  
U.S. - North Carolina - Control of Toxic Air Pollutants  
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour  
U.S. - Oregon - Permissible Exposure Limits - TWAs  
U.S. - California - Safer Consumer Products - Initial List of Candidate Chemicals and Chemical Groups  
RTK - U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual

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U.S. - South Carolina - Toxic Air Pollutants - Maximum Allowable Concentrations  
 U.S. - South Carolina - Toxic Air Pollutants - Pollutant Categories  
 U.S. - Tennessee - Occupational Exposure Limits - TWAs  
 U.S. - Texas - City of Austin - Aerosol Paint and Glue Restrictions  
 U.S. - Texas - Effects Screening Levels - Long Term  
 U.S. - Texas - Effects Screening Levels - Short Term  
 U.S. - Vermont - Permissible Exposure Limits - TWAs  
 U.S. - Washington - Permissible Exposure Limits - STELs  
 U.S. - Washington - Permissible Exposure Limits - TWAs  
 U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet  
 U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet  
 U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater  
 U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

### 2-Methylpentane (107-83-5)

U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1  
 U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2  
 U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity  
 U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1  
 U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2  
 RTK - U.S. - Massachusetts - Right To Know List  
 U.S. - Minnesota - Hazardous Substance List  
 RTK - U.S. - New Jersey - Right to Know Hazardous Substance List  
 U.S. - New Jersey - Special Health Hazards Substances List  
 RTK - U.S. - Pennsylvania - RTK (Right to Know) List  
 U.S. - Texas - Effects Screening Levels - Long Term  
 U.S. - Texas - Effects Screening Levels - Short Term

### 3-Methylpentane (96-14-0)

U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1  
 U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2  
 U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity  
 U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1  
 U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2  
 RTK - U.S. - Massachusetts - Right To Know List  
 RTK - U.S. - Pennsylvania - RTK (Right to Know) List  
 U.S. - Texas - Effects Screening Levels - Long Term  
 U.S. - Texas - Effects Screening Levels - Short Term

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

**Revision Date** : 04/14/2016  
**Indication of Changes** : Revision date.  
**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

### GHS Full Text Phrases:

Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Asp. Tox. 1	Aspiration hazard Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Gas 1	Flammable gases Category 1
Flam. Liq. 1	Flammable liquids Category 1
Flam. Liq. 2	Flammable liquids Category 2
Liquefied gas	Gases under pressure Liquefied gas
Repr. 2	Reproductive toxicity Category 2
Simple Asphy	Simple Asphyxiant

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Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H224	Extremely flammable liquid and vapor
H225	Highly flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

NFPA Health Hazard

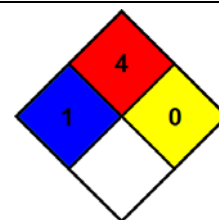
: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA Fire Hazard

: 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.

NFPA Reactivity Hazard

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

SDS US (GHS HazCom)