

**SECTION 1: IDENTIFICATION****1.1. Product Identifier****Product Form:** Mixture**Product Name:** Pentane Plus**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)**

Flam. Liq. 1 H224

STOT SE 3 H336

Aquatic Acute 2 H401

Aquatic Chronic 2 H411

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)**

: H224 - Extremely flammable liquid and vapor.

H336 - May cause drowsiness or dizziness.

H401 - Toxic to aquatic life.

H411 - Toxic to aquatic life with long lasting effects.

**Precautionary Statements (GHS-US)**

: P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking.

P233 - Keep container tightly closed.

P240 - Ground/bond container and receiving equipment.

P241 - Use explosion-proof electrical, ventilating, and lighting equipment.

P242 - Use only non-sparking tools.

P243 - Take precautionary measures against static discharge.

P261 - Avoid breathing vapors, mist, or spray.

P271 - Use only outdoors or in a well-ventilated area.

P273 - Avoid release to the environment.

P280 - Wear eye protection, protective clothing, protective gloves.

P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 - If inhaled: Remove person to fresh air and keep at rest in a position comfortable for breathing.

P312 - Call a poison center or doctor if you feel unwell.

P370+P378 - In case of fire: Use appropriate media (see section 5) to extinguish.

P391 - Collect spillage.

P403+P233+P235 - Store in a well-ventilated place. Keep container tightly closed.

Keep cool.

P405 - Store locked up.

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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.

### 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)
Pentane	(CAS No) 109-66-0	71	Flam. Liq. 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Isopentane	(CAS No) 78-78-4	17.32	Flam. Liq. 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Butane	(CAS No) 106-97-8	5.69	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
Isobutane	(CAS No) 75-28-5	4.82	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
cis-2-Butene	(CAS No) 590-18-1	0.36	Simple Asphy Flam. Gas 1, H220 Compressed gas, H280
2-Butene, (E)-	(CAS No) 624-64-6	0.34	Simple Asphy Flam. Gas 1, H220 Compressed gas, H280

Full text of H-phrases: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of First Aid Measures

**First-aid Measures General:** 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 Skin Contact:** Obtain medical attention if irritation persists. Thaw frosted parts with lukewarm water. Do not rub affected area. Wash contaminated clothing before reuse.

**First-aid Measures After Eye Contact:** Obtain medical attention if irritation persists.

**First-aid Measures After Ingestion:** Get immediate medical attention.

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

**Symptoms/Injuries:** Vapors may cause drowsiness and dizziness.

**Symptoms/Injuries After Inhalation:** 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 may cause nausea, vomiting and diarrhea.

**Chronic Symptoms:** None expected under normal conditions of use.

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

If exposed or concerned, get medical advice and attention.

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## SECTION 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** 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 liquid and vapor.

**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:** Reacts with (strong) oxidizers: (increased) risk of fire.

### 5.3. Advice for Firefighters

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

**Firefighting Instructions:** In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers.

**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.

## 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. No smoking. Avoid breathing gas, vapor, mist, or spray. Use only outdoors or in a well-ventilated area. Avoid all contact with skin, eyes, or clothing. 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:** Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions.

**Methods for Cleaning Up:** Clear up spills immediately and dispose of waste safely. Use water spray to disperse vapors. For water based spills contact appropriate authorities and abide by local regulations for hydrocarbon spills into waterways. Use only non-sparking tools. 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. Do not pressurize, cut, or weld containers. Do not puncture or incinerate container.

**Precautions for Safe Handling:** 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.

**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:** Keep/Store away from direct sunlight, extremely high or low temperatures, ignition sources, heat, combustible materials, incompatible materials. Keep in fireproof place. Store in a well-ventilated place. Keep container tightly closed.

**Incompatible Products:** Strong acids. Strong bases. Strong oxidizers. Halogenated compounds.

**Incompatible Materials:** Heat sources. Direct sunlight. Heat. Sources of ignition.

**Storage Area:** Store in a well-ventilated place. Store locked up.

### 7.3. Specific End Use(s)

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Hydrocarbon. For professional use only.

### 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
USA NIOSH	NIOSH REL (ceiling) (mg/m <sup>3</sup> )	1800 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (ceiling) (ppm)	610 ppm
USA IDLH	US IDLH (ppm)	1500 ppm (10% LEL)
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	2950 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
2-Butene, (E)- (624-64-6)		
USA ACGIH	ACGIH TWA (ppm)	250 ppm
cis-2-Butene (590-18-1)		
USA ACGIH	ACGIH TWA (ppm)	250 ppm
Isopentane (78-78-4)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm

#### 8.2. Exposure Controls

##### Appropriate Engineering Controls

: 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. Ensure all national/local regulations are observed. Gas detectors should be used when flammable gases/vapors may be released.

##### Personal Protective Equipment

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



##### 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.

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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

##### Physical State

: Liquid

##### Appearance

: Clear colorless liquid

##### Odor

: Distinct hydrocarbon/gasoline odor

##### Odor Threshold

: No data available

##### pH

: No data available

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Evaporation Rate	: No data available
Melting Point	: -129.7 °C (-201.46 °F)
Freezing Point	: No data available
Boiling Point	: -36.07 °C (-32.93 °F)
Flash Point	: -76 °F (-60 °C)
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: Extremely flammable liquid
Vapor Pressure	: 206.8 kPa at 100 °F
Relative Vapor Density at 20 °C	: 1.0 - 3.9 (Air=1)
Relative Density	: No data available
Specific Gravity	: ≈ 0.694 (Water=1)
Solubility	: Water: Slight
Partition Coefficient: N-Octanol/Water	: No data available
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 liquid and vapor. May form flammable/explosive vapor-air mixture.
- 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. Sparks. Heat. Direct sunlight. Overheating. Open flame.
- 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. May release flammable gases.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information On Toxicological Effects

Acute Toxicity: Not classified

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

**Skin Corrosion/Irritation:** Not classified

**Serious Eye Damage/Irritation:** Not classified

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** May cause drowsiness or dizziness.

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

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** 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 may cause nausea, vomiting and diarrhea.

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**Chronic Symptoms:** None expected under normal conditions of use.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

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

Pentane (109-66-0)	
LC50 Fish 1	9.87 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 Daphnia 1	9.74 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	11.59 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
Isopentane (78-78-4)	
EC50 Daphnia 1	2.3 mg/l (Exposure time: 48 h - Species: Daphnia magna)

### 12.2. Persistence and Degradability

Pentane Plus	
Persistence and Degradability	Product is biodegradable.

### 12.3. Bioaccumulative Potential

Pentane 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
Isopentane (78-78-4)	
Log Pow	3.2 - 3.3

**12.4. Mobility in Soil** No additional information available

### 12.5. Other Adverse Effects

**Other Adverse Effects** : Can cause frost damage to vegetation.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

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

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

## SECTION 14: TRANSPORT INFORMATION

### 14.1. In Accordance with DOT

**Proper Shipping Name** : 1-PENTENE (N-AMYLENE)  
**Hazard Class** : 3  
**Identification Number** : UN1108  
**Label Codes** : 3  
**Packing Group** : I  
**ERG Number** : 115



### 14.2. In Accordance with IMDG

**Proper Shipping Name** : 1-PENTENE (N-AMYLENE)  
**Hazard Class** : 3  
**Identification Number** : UN1108  
**Packing Group** : I  
**Label Codes** : 3  
**EmS-No. (Fire)** : F-E  
**EmS-No. (Spillage)** : S-D



### 14.3. In Accordance with IATA

**Proper Shipping Name** : 1-PENTENE

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**Packing Group** : I  
**Identification Number** : UN1108  
**Hazard Class** : 3  
**Label Codes** : 3  
**ERG Code (IATA)** : 3H



## SECTION 15: REGULATORY INFORMATION

### 15.1 US Federal Regulations

<b>Pentane Plus</b>	
<b>SARA Section 311/312 Hazard Classes</b>	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
<b>Butane (106-97-8)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<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>2-Butene, (E)- (624-64-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>cis-2-Butene (590-18-1)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Isopentane (78-78-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

### 15.2 US State Regulations

<b>Butane (106-97-8)</b> 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 - Sufficient Quantities U.S. - Delaware - Accidental Release Prevention Regulations - Threshold Quantities U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities U.S. - Maine - Chemicals of High Concern 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 - TWAs U.S. - Minnesota - Chemicals of High Concern U.S. - Minnesota - Hazardous Substance List 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. - 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 - TWAs U.S. - Texas - Effects Screening Levels - Long Term U.S. - Texas - Effects Screening Levels - Short Term
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U.S. - Vermont - Permissible Exposure Limits - TWAs  
U.S. - Washington - Permissible Exposure Limits - STELs  
U.S. - Washington - Permissible Exposure Limits - TWAs

### Isobutane (75-28-5)

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. - Maine - Chemicals of High Concern  
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 - 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



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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

### **2-Butene, (E)- (624-64-6)**

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  
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 - 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

### **cis-2-Butene (590-18-1)**

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  
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 - 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

### **Isopentane (78-78-4)**

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  
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 - TCPA - Extraordinarily Hazardous Substances (EHS)

# Pentane Plus

## Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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

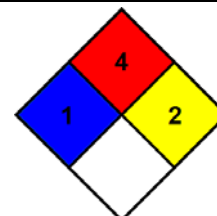
### SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

<b>Revision Date</b>	: 04/14/2016
<b>Indication of Changes</b>	: Revision date.
<b>Other Information</b>	: 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 Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Asp. Tox. 1	Aspiration hazard Category 1
Compressed gas	Gases under pressure Compressed gas
Flam. Gas 1	Flammable gases Category 1
Flam. Liq. 1	Flammable liquids Category 1
Liquefied gas	Gases under pressure Liquefied gas
Simple Asphy	Simple Asphyxiant
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H224	Extremely flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H304	May be fatal if swallowed and enters airways
H336	May cause drowsiness or dizziness
H401	Toxic to aquatic life
H411	Toxic 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	: 2 - Normally unstable and readily undergo violent decomposition but do not detonate. Also: may react violently with water or may form potentially explosive mixtures 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)