

# SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

**1. Identification**

**Product identifier:** Pentane

**Other means of identification**

**Product No.:** 9430, V557, T007, 9333, 9331, 12817

**Recommended restrictions**

**Recommended use:** Not available.  
**Restrictions on use:** Not determined.

**Details of the supplier of the safety data sheet**

**Manufacturer**

Company Name:	Avantor Performance Materials, LLC.
Address:	3477 Corporate Parkway Center Valley, PA 18034
Telephone:	Customer Service: 855-282-6867
Fax:	610-573-2610
Contact Person:	Environmental Health & Safety
E-mail:	info@avantormaterials.com

**Emergency telephone number:**

CHEMTREC: 1-800-424-9300 within US and Canada

**2. Hazard(s) identification**

**Hazard Classification**

**Physical Hazards**

Flammable liquids	Category 2
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**Health Hazards**

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2B
Specific Target Organ Toxicity - Single Exposure	Category 3 <sup>1</sup>
Aspiration Hazard	Category 1

**Target Organs**

1. Narcotic effect., Respiratory tract irritation.

**Unknown toxicity - Health**

Acute toxicity, dermal	100 %
Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

**Environmental Hazards**

Acute hazards to the aquatic environment	Category 2
Chronic hazards to the aquatic environment	Category 2

**Unknown toxicity - Environment**

Acute hazards to the aquatic environment	0 %
Chronic hazards to the aquatic environment	100 %

**Label Elements**

**Hazard Symbol:**



**Signal Word:** Danger

**Hazard Statement:** Highly flammable liquid and vapor.  
Causes skin and eye irritation.  
May cause respiratory irritation.  
May cause drowsiness or dizziness.  
May be fatal if swallowed and enters airways.  
Toxic to aquatic life with long lasting effects.

**Precautionary Statements**

**Prevention:** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wash hands thoroughly after handling. Keep container tightly closed. Ground and bond container and receiving equipment. Use non-sparking tools. Use explosion-proof [electrical/ventilating/lighting] equipment. Take action to prevent static discharges. Wear protective gloves/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Avoid release to the environment.

**Response:** If eye irritation persists: Get medical advice/attention. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting. Collect spillage.

**Storage:** Store in a well-ventilated place. Keep container tightly closed. Store locked up.

**Disposal:** Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Hazard(s) not otherwise classified (HNOC):** Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

### 3. Composition/information on ingredients

**Substances**

Chemical Identity	CAS number	Content in percent (%)*
Pentane	109-66-0	98 - 100%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First-aid measures

- General information:** Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
- Ingestion:** Call a physician or poison control center immediately. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
- Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Get medical attention if symptoms persist.
- Skin Contact:** Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
- Eye contact:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing.

**Most important symptoms/effects, acute and delayed**

- Symptoms:** May cause skin and eye irritation.
- Hazards:** None known.

**Indication of immediate medical attention and special treatment needed**

- Treatment:** Treat symptomatically. Symptoms may be delayed.

### 5. Fire-fighting measures

- General Fire Hazards:** Flammable liquid and vapor. In case of fire and/or explosion do not breathe fumes.

**Suitable (and unsuitable) extinguishing media**

- Suitable extinguishing media:** Water spray, foam, dry powder or carbon dioxide.
- Unsuitable extinguishing media:** Avoid water in straight hose stream; will scatter and spread fire.

**Specific hazards arising from the chemical:** Can be ignited easily and burns vigorously. Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Heat may cause the containers to explode.

**Special protective equipment and precautions for firefighters**

**Special fire fighting procedures:** Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out.

**Special protective equipment for fire-fighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures:** ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment.

**Methods and material for containment and cleaning up:** In case of leakage, eliminate all ignition sources. Take precautionary measures against static discharges. Stop leak if possible without any risk. Use non-sparking tools. All equipment used when handling the product must be grounded. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

**Notification Procedures:** Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

**Environmental Precautions:** Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

**7. Handling and storage**

**Precautions for safe handling:** DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground and bond container and receiving equipment. Use non-sparking tools. Use explosion-proof [electrical/ventilating/lighting] equipment. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with eyes, skin, and clothing. Avoid breathing mist or vapor. Do not taste or swallow. Use only with adequate ventilation. Wash hands thoroughly after handling.

**Conditions for safe storage, including any incompatibilities:** Keep away from food, drink and animal feeding stuffs. Keep out of reach of children. Protect against direct sunlight. Keep container tightly closed in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

**8. Exposure controls/personal protection**

**Control Parameters**
**Occupational Exposure Limits**

Chemical Identity	Type	Exposure Limit Values	Source
Pentane	TWA	1,000 ppm	US. ACGIH Threshold Limit Values (02 2014)
	Ceil_Time	610 ppm 1,800 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	REL	120 ppm 350 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	1,000 ppm 2,950 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	600 ppm 1,800 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	750 ppm 2,250 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA	600 ppm 1,800 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	STEL	750 ppm 2,250 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	ST ESL	4,100 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	AN ESL	7,100 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (03 2014)
	AN ESL	2,400 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	ST ESL	1,400 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	TWA PEL	600 ppm 1,800 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)

**Appropriate Engineering Controls** No data available.

**Individual protection measures, such as personal protective equipment**

**General information:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

**Eye/face protection:** Chemical goggles and face shield are recommended.

**Skin Protection**  
**Hand Protection:** Chemical resistant gloves

**Other:** Wear suitable protective clothing.

**Respiratory Protection:** In case of inadequate ventilation use suitable respirator.

**Hygiene measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

**9. Physical and chemical properties**

**Appearance**

<b>Physical state:</b>	Liquid
<b>Form:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Gasoline-like odor
<b>Odor threshold:</b>	No data available.
<b>pH:</b>	No data available.
<b>Melting point/freezing point:</b>	-129.7 °C
<b>Initial boiling point and boiling range:</b>	36.1 °C
<b>Flash Point:</b>	-49 °C (Closed Cup)
<b>Evaporation rate:</b>	28.6 (butyl acetate=1)
<b>Flammability (solid, gas):</b>	Class IA Flammable Liquid
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Flammability limit - upper (%):</b>	7.8 %(V)
<b>Flammability limit - lower (%):</b>	1.5 %(V)
<b>Explosive limit - upper (%):</b>	No data available.
<b>Explosive limit - lower (%):</b>	No data available.
<b>Vapor pressure:</b>	68.53 kPa (25 °C)
<b>Vapor density:</b>	2.49 (Air=1)
<b>Density:</b>	0.63 g/ml (20 °C)
<b>Relative density:</b>	0.63 (20 °C)
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	0.04 g/l (25 °C)
<b>Solubility (other):</b>	ethanol: Very Soluble ether: Very Soluble acetone: Very Soluble chloroform: Very Soluble
<b>Partition coefficient (n-octanol/water):</b>	3.39
<b>Auto-ignition temperature:</b>	260 °C
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.
<b>Other information</b>	
<b>Minimum ignition energy:</b>	0.28 mJ
<b>Molecular weight:</b>	72.15 g/mol (C5H12)

<b>10. Stability and reactivity</b>
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<b>Reactivity:</b>	No data available.
<b>Chemical Stability:</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions:</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid:</b>	Heat, sparks, flames. Contact with incompatible materials.
<b>Incompatible Materials:</b>	Strong oxidizers Strong oxidizing agents. Flammable/combustible material.
<b>Hazardous Decomposition Products:</b>	Fire or excessive heat may produce hazardous decomposition products.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation:</b>	May cause irritation to the respiratory system.
<b>Skin Contact:</b>	Skin irritation.
<b>Eye contact:</b>	May cause temporary eye irritation.
<b>Ingestion:</b>	Harmful or fatal if swallowed.

### Information on toxicological effects

#### Acute toxicity (list all possible routes of exposure)

##### Oral

**Product:** LD 50 (Rat): > 5,000 mg/kg

##### Dermal

**Product:** No data available.

##### Inhalation

**Product:** LC 50 (Rat, 4 h) 364 mg/l  
LOAEL 23500 ppm Vapor

#### Repeated dose toxicity

**Product:** No data available.

#### Skin Corrosion/Irritation

**Product:** May cause skin irritation.

#### Serious Eye Damage/Eye Irritation

**Product:** Irritating to eyes.

#### Respiratory or Skin Sensitization

**Product:** Not a skin sensitizer.

#### Carcinogenicity

**Product:** This substance has no evidence of carcinogenic properties.

#### IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

#### US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

#### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

#### Germ Cell Mutagenicity

##### In vitro

**Product:** No mutagenic components identified

##### In vivo

**Product:** No mutagenic components identified

**Reproductive toxicity**

**Product:** No components toxic to reproduction

**Specific Target Organ Toxicity - Single Exposure**

**Product:** No data available.

**Specific Target Organ Toxicity - Repeated Exposure**

**Product:** No data available.

**Target Organs**

Specific Target Organ Toxicity - Single Exposure: Narcotic effect., Respiratory tract irritation.

**Aspiration Hazard**

**Product:** May be fatal if swallowed and enters airways.

**Other effects:** None known.

<b>12. Ecological information</b>
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**Ecotoxicity:**

**Acute hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Specified substance(s):**

Pentane NOAEL (Oncorhynchus kisutch, 96 h): > 100 mg/l  
LC 50 (Oncorhynchus mykiss, 96 h): 4.26 mg/l

**Aquatic Invertebrates**

**Product:** No data available.

**Specified substance(s):**

Pentane EC 50 (Daphnia magna, 48 h): 2.7 - 9.1 mg/l

**Chronic hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Specified substance(s):**

Pentane NOAEL (Oncorhynchus mykiss, 28 d): 6.165 mg/l

**Aquatic Invertebrates**

**Product:** No data available.

**Specified substance(s):**

Pentane NOAEL (Daphnia magna, 21 d): 10.76 mg/l

**Toxicity to Aquatic Plants**

**Product:** No data available.

**Persistence and Degradability**

**Biodegradation**



**Product:** There are no data on the degradability of this product.

**BOD/COD Ratio**  
**Product:** No data available.

**Bioaccumulative potential**  
**Bioconcentration Factor (BCF)**  
**Product:** No data available on bioaccumulation.

**Partition Coefficient n-octanol / water (log Kow)**  
**Product:** Log Kow: 3.39

**Mobility in soil:** No data available.

**Known or predicted distribution to environmental compartments**  
Pentane No data available.

**Other adverse effects:** Toxic to aquatic life with long lasting effects.

### 13. Disposal considerations

**Disposal instructions:** Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Contaminated Packaging:** Since emptied containers retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

#### DOT

UN Number:	UN 1265
UN Proper Shipping Name:	Pentanes
Transport Hazard Class(es)	
Class:	3
Label(s):	3
Packing Group:	II
Marine Pollutant:	No
Special precautions for user:	Not determined.

#### IMDG

UN Number:	UN 1265
UN Proper Shipping Name:	PENTANES
Transport Hazard Class(es)	
Class:	3
Label(s):	3
EmS No.:	F-E, S-D
Packing Group:	II
Marine Pollutant:	No

Special precautions for user: Not determined.

**IATA**

UN Number: UN 1265  
 Proper Shipping Name: Pentanes  
 Transport Hazard Class(es):  
   Class: 3  
   Label(s): 3  
 Packing Group: II  
 Marine Pollutant: No  
 Special precautions for user: Not determined.

**15. Regulatory information**

**US Federal Regulations**

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

None present or none present in regulated quantities.

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

None present or none present in regulated quantities.

**CERCLA Hazardous Substance List (40 CFR 302.4):**

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Pentane	100 lbs.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**

Flammable liquids  
 Skin Corrosion/Irritation  
 Serious Eye Damage/Eye Irritation  
 Specific Target Organ Toxicity - Single Exposure  
 Aspiration Hazard  
 Static-accumulating flammable liquid

**SARA 302 Extremely Hazardous Substance**

None present or none present in regulated quantities.

**SARA 304 Emergency Release Notification**

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Pentane	100 lbs.

**SARA 311/312 Hazardous Chemical**

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
Pentane	10000 lbs.

**SARA 313 (TRI Reporting)**

None present or none present in regulated quantities.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Pentane	10000 lbs.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):**

None present or none present in regulated quantities.

## US State Regulations

### US. California Proposition 65

No ingredient regulated by CA Prop 65 present.

### US. New Jersey Worker and Community Right-to-Know Act

#### Chemical Identity

Pentane

### US. Massachusetts RTK - Substance List

#### Chemical Identity

Pentane

### US. Pennsylvania RTK - Hazardous Substances

#### Chemical Identity

Pentane

### US. Rhode Island RTK

#### Chemical Identity

Pentane

## International regulations

### Montreal protocol

not applicable

### Stockholm convention

not applicable

### Rotterdam convention

not applicable

### Kyoto protocol

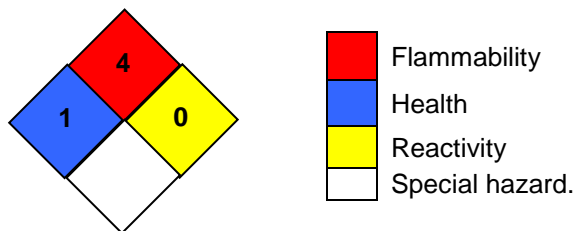
not applicable

## Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory

## 16. Other information, including date of preparation or last revision

**NFPA Hazard ID**



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

**Issue Date:** 09-27-2017

**Revision Information:** Not relevant.

**Version #:** 1.1

**Further Information:** No data available.

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