

# SAFETY DATA SHEET

## 1. Identification

**Product identifier:** HEXANES

**Other means of identification**

**Product No.:** H487, 5189, 5188, 5162

**Recommended use and restriction on use**

**Recommended use:** Not available.

**Restrictions on use:** Not known.

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

**Manufacturer**

**Company Name:** Avantor Performance Materials, Inc.  
**Address:** 3477 Corporate Parkway, Suite 200  
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  
CHEMTREC: 1-703-527-3887 outside US and Canada

## 2. Hazard(s) identification

**Hazard Classification**

**Physical Hazards**

Flammable liquids Category 2

**Health Hazards**

Skin Corrosion/Irritation Category 2  
Serious Eye Damage/Eye Irritation Category 2B  
Toxic to reproduction Category 2  
Specific Target Organ Toxicity -  
Single Exposure Category 3  
Specific Target Organ Toxicity -  
Repeated Exposure Category 1  
Aspiration Hazard Category 1

**Environmental Hazards**

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

**Label Elements**

**Hazard Symbol:**



**Signal Word:** Danger

**Hazard Statement:** Highly flammable liquid and vapor.  
Causes skin irritation.  
Causes eye irritation.  
May cause respiratory irritation.  
May cause drowsiness or dizziness.  
Causes damage to organs through prolonged or repeated exposure.  
Suspected of damaging fertility or the unborn child.  
May be fatal if swallowed and enters airways.  
Toxic to aquatic life with long lasting effects.

**Precautionary Statement**

**Prevention:** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Obtain special instructions before use. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. Do not handle until all safety precautions have been read and understood. Avoid release to the environment.

**Response:** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. In case of fire: Use water spray, foam, dry powder or carbon dioxide for extinction. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. IF exposed or concerned: Get medical advice/attention.

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

**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.

**Other hazards which do not result in GHS classification:** 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

## Mixtures

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
HEXANE		110-54-3	90 - 100%
3-METHYLPENTANE		96-14-0	0.1 - 1%
2,4-DIMETHYLPENTANE		108-08-7	0.1 - 1%

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

## 4. First-aid measures

<b>General information:</b>	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
<b>Ingestion:</b>	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
<b>Inhalation:</b>	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
<b>Skin Contact:</b>	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
<b>Eye contact:</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

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

**Symptoms:** Narcotic effect. Respiratory tract irritation.

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

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

## 5. Fire-fighting measures

**General Fire Hazards:** Highly flammable liquid and vapor.

### Suitable (and unsuitable) extinguishing media

**Suitable extinguishing media:** Water spray, foam, dry powder or carbon dioxide.

**Unsuitable extinguishing media:** Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical:** 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.

**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:**

Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharges. Stop leak if possible without any risk. Use only non-sparking tools. 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.

**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. Use personal protective equipment as required. Wash hands thoroughly after handling. Use only with adequate ventilation. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Avoid contact with eyes, skin, and clothing.

**Conditions for safe storage, including any incompatibilities:**

Store in a well-ventilated place. Keep cool. Store locked up.

**8. Exposure controls/personal protection**
**Control Parameters**
**Occupational Exposure Limits**

Chemical Identity	type	Exposure Limit Values	Source
HEXANE	TWA	50 ppm	US. ACGIH Threshold Limit Values (2011)
	REL	50 ppm 180 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	500 ppm 1,800 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
3-METHYLPENTANE	TWA	50 ppm 180 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	1,000 ppm	US. ACGIH Threshold Limit Values (02 2012)
	TWA	500 ppm	US. ACGIH Threshold Limit Values (02 2012)
	Ceil_Time	510 ppm 1,800 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	REL	100 ppm 350 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	STEL	1,000 ppm 3,600 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
2,4-DIMETHYLPENTANE	TWA	500 ppm 1,800 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	500 ppm	US. ACGIH Threshold Limit Values (02 2012)

	TWA	400 ppm	US. ACGIH Threshold Limit Values (02 2012)
	TWA	400 ppm 1,600 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	500 ppm 2,000 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

#### Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
HEXANE (2,5-Hexanedion, without hydrolysis: Sampling time: End of shift at end of work week.)	0.4 mg/l (Urine)	ACGIH BEL (03 2013)

**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:** Wear safety glasses with side shields (or goggles) and a face shield.

**Skin Protection**

**Hand Protection:** Chemical resistant gloves

**Other:** Wear suitable protective clothing and gloves.

**Respiratory Protection:** In case of inadequate ventilation use suitable respirator. Chemical respirator with organic vapor cartridge and full facepiece.

**Hygiene measures:** Provide eyewash station and safety shower. Observe good industrial hygiene practices. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wash contaminated clothing before reuse. Wash hands before breaks and immediately after handling the product.

### 9. Physical and chemical properties

#### Appearance

**Physical state:** liquid  
**Form:** liquid  
**Color:** Colorless

**Odor:** Slight odor

**Odor threshold:** No data available.

**pH:** No data available.

**Melting point/freezing point:** -95 °C

**Initial boiling point and boiling range:** 68 °C

**Flash Point:** -23 °C

**Evaporation rate:** 9 (butyl acetate=1)

**Flammability (solid, gas):** No data available.

#### Upper/lower limit on flammability or explosive limits

**Flammability limit - upper (%):** 7.7 %(V) (Hexane)

**Flammability limit - lower (%):** 1.2 %(V) (Hexane)

<b>Explosive limit - upper (%):</b>	No data available.
<b>Explosive limit - lower (%):</b>	No data available.
<b>Vapor pressure:</b>	20.2 kPa
<b>Vapor density:</b>	3 AIR=1
<b>Relative density:</b>	0.66 (20 °C)
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	Insoluble in water
<b>Solubility (other):</b>	No data available.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Auto-ignition temperature:</b>	224 °C (Hexane)
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.
<b>Other information</b>	
<b>Molecular weight:</b>	86.18 g/mol

## 10. Stability and reactivity

<b>Reactivity:</b>	No dangerous reaction known under conditions of normal use.
<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 oxidizing agents.
<b>Hazardous Decomposition Products:</b>	Thermal decomposition may release oxides of carbon.

## 11. Toxicological information

**General information:** May cause reproductive effects.

### Information on likely routes of exposure

<b>Ingestion:</b>	May be fatal if swallowed. May cause irritation of the gastrointestinal tract.
<b>Inhalation:</b>	May cause irritation to the mucous membranes and upper respiratory tract. Irritating to respiratory system.
<b>Skin Contact:</b>	Causes skin irritation.
<b>Eye contact:</b>	Causes eye irritation.

### Information on toxicological effects

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

<b>Oral</b>	
<b>Product:</b>	No data available.
<b>Specified substance(s):</b>	
HEXANE	LD 50 (Rat): 15,800 mg/kg
<b>Dermal</b>	
<b>Product:</b>	No data available.

**Inhalation**

**Product:** No data available.

**Specified substance(s):**

HEXANE  
LC 50 (Rat, 4 h): < 48000 ppm  
LC 50 (Mouse, 4 h): 48000 ppm

**Repeated dose toxicity**

**Product:** No data available.

**Skin Corrosion/Irritation**

**Product:** Causes skin irritation.

**Serious Eye Damage/Eye Irritation**

**Product:** Causes eye irritation.

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

**Specific Target Organ Toxicity - Single Exposure**

**Product:** Narcotic effect. Respiratory tract irritation.

**Specific Target Organ Toxicity - Repeated Exposure**

**Product:** Central nervous system. Peripheral nervous system

**Aspiration Hazard**

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

**Other effects:**

Can cause adverse reproductive effects - such as birth defects, miscarriages, or infertility.

## 12. Ecological information

**Ecotoxicity:**
**Acute hazards to the aquatic environment:**
**Fish**

**Product:** No data available.

**Specified substance(s):**

HEXANE

LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 2.101 - 2.981 mg/l Mortality  
LC 50 (Carp (*Leuciscus idus melanotus*), 48 h): 210 mg/l Mortality

**Aquatic Invertebrates**
**Product:**

No data available.

**Specified substance(s):**

HEXANE

EC 50 (Brine shrimp (*Artemia salina*), 24 h): 1.36 - 1.66 mg/l Intoxication  
LC 50 (Water flea (*Daphnia magna*), 24 h): > 50 mg/l Mortality  
LC 50 (Water flea (*Daphnia magna*), 24 h): > 50 mg/l Mortality

**Chronic hazards to the aquatic environment:**
**Fish**
**Product:**

No data available.

**Aquatic Invertebrates**
**Product:**

No data available.

**Toxicity to Aquatic Plants**
**Product:**

No data available.

**Persistence and Degradability**
**Biodegradation**
**Product:**

The product is not expected to be biodegradable.

**BOD/COD Ratio**
**Product:**

No data available.

**Bioaccumulative Potential**
**Bioconcentration Factor (BCF)**
**Product:**

Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

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

No data available.

**Specified substance(s):**

HEXANE

Log Kow: 3.90

3-METHYLPENTANE

Log Kow: 3.60

**Mobility in Soil:**

The product is insoluble in water and will spread on the water surface.

**Other Adverse Effects:**

Expected to be very toxic to aquatic organisms. May cause long-term adverse effects in the environment.

<b>13. Disposal considerations</b>
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**General information:**

This product is highly flammable. Don't use fire to cut empty container after use.

**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. Since emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container.



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

## 14. Transport information

### DOT

UN Number:	UN 1208
UN Proper Shipping Name:	Hexanes
Transport Hazard Class(es)	
Class(es):	3
Label(s):	3
Packing Group:	II
Marine Pollutant:	Yes
Special precautions for user:	—

### IMDG

UN Number:	UN 1208
UN Proper Shipping Name:	HEXANES
Transport Hazard Class(es)	
Class(es):	3
Label(s):	3
EmS No.:	F-E, S-D
Packing Group:	II
Marine Pollutant:	Yes
Special precautions for user:	—

### IATA

UN Number:	UN 1208
Proper Shipping Name:	Hexanes
Transport Hazard Class(es):	
Class(es):	3
Label(s):	3
Marine Pollutant:	Yes
Packing Group:	II
Special precautions for user:	—

## 15. Regulatory information

### US Federal Regulations

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

##### 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>
HEXANE	5000 lbs.
3-METHYLPENTANE	100 lbs.
2,4-DIMETHYLPENTANE	100 lbs.

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

##### Hazard categories

Acute (Immediate)  
Chronic (Delayed)  
Fire

##### 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>
HEXANE	5000 lbs.
3-METHYLPENTANE	100 lbs.
2,4-DIMETHYLPENTANE	100 lbs.

**SARA 311/312 Hazardous Chemical**

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
HEXANE	10000 lbs
3-METHYLPENTANE	10000 lbs
2,4-DIMETHYLPENTANE	10000 lbs

**SARA 313 (TRI Reporting)**

<u>Chemical Identity</u>	<u>Reporting threshold for other users</u>	<u>Reporting threshold for manufacturing and processing</u>
HEXANE	10000 lbs	25000 lbs.

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

None present or none present in regulated quantities.

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

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**

<u>Chemical Identity</u>
HEXANE

**US. Massachusetts RTK - Substance List**

<u>Chemical Identity</u>
HEXANE

**US. Pennsylvania RTK - Hazardous Substances**

<u>Chemical Identity</u>
HEXANE

**US. Rhode Island RTK**

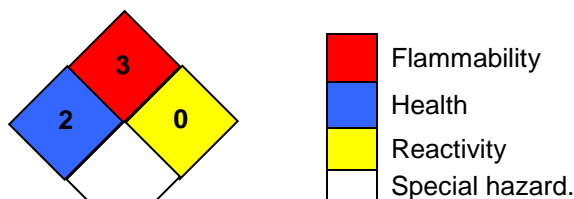
<u>Chemical Identity</u>
HEXANE

**Inventory Status:**

Australia AICS:	Not in compliance with the inventory.
Canada DSL Inventory List:	Not in compliance with the inventory.
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not 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
Japan ISHL Listing:	On or in compliance with the inventory
Japan Pharmacopoeia Listing:	Not 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:** 11-17-2015

**Revision Date:** No data available.

**Version #:** 1.1

**Further Information:** No data available.

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