

1. Product and Company Identification

Material name	HEXANES
Version #	04
Revision date	08-26-2011
CAS #	Mixture
Product Codes	J.T.Baker: 9277, 9306, 9309, 9367, N169
Synonym(s)	NORMAL HEXANE * HEXYL HYDRIDE
Manufacturer information	Avantor Performance Materials, Inc. 3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US 24 Hour Emergency 908-859-2151 Chemtrec 800-424-9300 Customer Service 855-282-6867

2. Hazards Identification

Emergency overview	DANGER
	Extremely flammable liquid and vapor - vapor may cause flash fire. Will be easily ignited by heat, spark or flames. Harmful if inhaled. Harmful or fatal if swallowed. Causes skin and eye irritation. Causes respiratory tract irritation. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract. May damage fertility or the unborn child. Prolonged exposure may cause chronic effects.
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Causes eye irritation. High vapor/aerosol concentrations may be irritating.
Skin	Causes skin irritation. Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping.
Inhalation	Harmful if inhaled. May cause irritation to the mucous membranes and upper respiratory tract. In high concentrations, vapors and aerosol mists have a narcotic effect and may cause headache, fatigue, dizziness and nausea.
Ingestion	Harmful or fatal if swallowed. Ingestion may result in vomiting; aspiration (breathing) of vomitus into lungs must be avoided as even small quantities may result in aspiration pneumonitis.
Target organs	Eyes. Respiratory system. Skin. Central nervous system. Reproductive organs.
Chronic effects	Can cause nervous system damage. May cause adverse reproductive effects - such as birth defects, miscarriages, or infertility based on animal data. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Potential environmental effects	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
N-HEXANE	110-54-3	60 - 100
2-METHYLPENTANE	107-83-5	1 - 5
3-METHYLPENTANE	96-14-0	1 - 5
METHYLCYCLOPENTANE	96-37-7	1 - 5
PENTANE	109-66-0	< 3

4. First Aid Measures

First aid procedures

- Eye contact** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
- Skin contact** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
- Inhalation** Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Get medical attention.
- Ingestion** Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Notes to physician

Hexane- Individuals with neurological disease should avoid exposure. Treat symptomatically. Symptoms may be delayed.

General advice

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties

HIGHLY FLAMMABLE! Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Heat may cause the containers to explode.

Extinguishing media

Suitable extinguishing media Water spray. Foam. Dry powder. Carbon dioxide (CO₂).

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

Protection of firefighters

Specific hazards arising from the chemical Can be ignited easily and burns vigorously. Vapor from the solvent may accumulate in container headspace resulting in flammability hazard.

Protective equipment for firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Fire fighting equipment/instructions

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Move containers from fire area if you can do so without risk. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Some of these materials, if spilled, may evaporate leaving a flammable residue. Cool containers exposed to flames with water until well after the fire is out.

Specific methods

In the event of fire and/or explosion do not breathe fumes. Use water spray to cool unopened containers.

Hazardous combustion products Carbon monoxide and carbon dioxide.

6. Accidental Release Measures

Personal precautions

Wear appropriate protective equipment and clothing during clean-up. Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.

Environmental precautions

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

Methods for containment

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material, where this is possible.

Methods for cleaning up

Use only non-sparking tools. All equipment used when handling the product must be grounded.

Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Dike far ahead of spill for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Collect in a non-combustible container for prompt disposal.

Never return spills in original containers for re-use. Clean surface thoroughly to remove residual contamination. Clean up in accordance with all applicable regulations.

J. T. Baker SOLUSORB® solvent adsorbent is recommended for spills of this product.

7. Handling and Storage

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. Wear appropriate personal protective equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.

Storage

Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children. 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

Occupational exposure limits

Canada - British Columbia

Components

Components	Type	Value
2-METHYLPENTANE (107-83-5)	TWA	200.0000 ppm
3-METHYLPENTANE (96-14-0)	TWA	200.0000 ppm
N-HEXANE (110-54-3)	TWA	20.0000 ppm
PENTANE (109-66-0)	TWA	600.0000 ppm

Canada - Ontario

Components

Components	Type	Value
2-METHYLPENTANE (107-83-5)	STEL	1000.0000 ppm 3520.0000 mg/m3
	TWA	500.0000 ppm 1760.0000 mg/m3
3-METHYLPENTANE (96-14-0)	STEL	3520.0000 mg/m3 1000.0000 ppm
	TWA	500.0000 ppm 1760.0000 mg/m3
N-HEXANE (110-54-3)	TWA	176.0000 mg/m3 50.0000 ppm
PENTANE (109-66-0)	STEL	750.0000 ppm 2210.0000 mg/m3
	TWA	600.0000 ppm 1770.0000 mg/m3

Canada - Quebec**Components**

	Type	Value
2-METHYLPENTANE (107-83-5)	STEL	1000.0000 ppm
		3500.0000 mg/m3
	TWA	500.0000 ppm 1760.0000 mg/m3
3-METHYLPENTANE (96-14-0)	STEL	3500.0000 mg/m3
		1000.0000 ppm
	TWA	500.0000 ppm 1760.0000 mg/m3
N-HEXANE (110-54-3)	TWA	50.0000 ppm 176.0000 mg/m3
PENTANE (109-66-0)	TWA	120.0000 ppm
		350.0000 mg/m3

Engineering controls

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. Explosion proof exhaust ventilation should be used.

Personal protective equipment**Eye / face protection**

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

Skin protection

Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.

Respiratory protection

Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

9. Physical & Chemical Properties

Appearance	Clear.
Color	Colorless.
Odor	Slight.
Odor threshold	Not available.
Physical state	Liquid.
Form	Liquid.
pH	Not available.
Melting point	-139 °F (-95.03 °C)
Freezing point	-139 °F (-95.03 °C)
Boiling point	156.2 °F (68.7555 °C)
Flash point	-9.4 °F (-23 °C) Pensky-Martens Closed Cup
Evaporation rate	9 BuAc
Flammability limits in air, upper, % by volume	7.7 % Hexane
Flammability limits in air, lower, % by volume	1.2 % Hexane
Vapor pressure	20.233 kPa
Vapor density	3
Specific gravity	0.6563
Relative density	Not available.

Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	435.2 °F (224 °C) Hexane
Decomposition temperature	Not available.
Molecular weight	86.18 g/mol Hexane
Molecular formula	CH ₃ (CH ₂) ₄ CH ₃ Hexane

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Test Results
HEXANES (Mixture)	Acute Inhalation LC50 Rat: 21264 mg/l estimated Acute Oral LD50 Rat: 16757 mg/kg estimated
Components	Test Results
N-HEXANE (110-54-3)	Acute Inhalation LC50 Rat: 48000 mg/l 4.00 Hours Acute Oral LD50 Rat: 15840 mg/kg
PENTANE (109-66-0)	Acute Inhalation LC50 Rat: 364 mg/l 4.00 Hours
Acute effects	Harmful if inhaled. Harmful or fatal if swallowed.
Sensitization	Not a skin sensitizer.
US ACGIH Threshold Limit Values: Skin designation	
N-HEXANE (CAS 110-54-3)	Can be absorbed through the skin.
Local effects	Irritating to eyes, respiratory system and skin. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract.
Chronic effects	Organic solvents may be absorbed into the body by inhalation and ingestion and cause permanent damage to the nervous system, including the brain. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Neurological effects	High vapor/aerosol concentrations (attainable only at elevated temperatures) may cause central nervous system effects such as dizziness, drowsiness or headaches. Central and/or peripheral nervous system damage.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Reproductive effects	Suspected of damaging fertility. Suspected of damaging the unborn child.
Teratogenicity	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Symptoms and target organs	Irritation. Upper respiratory tract irritation. Drowsiness and dizziness.
Epidemiology	No epidemiological data is available for this product.

12. Ecological Information

Ecotoxicological data

Product

HEXANES (Mixture)

Test Results

EC50 Daphnia: 1.4637 mg/l 24.00 hours
LC50 Fish: 60.88 mg/l 96.00 hours estimated

Components

N-HEXANE (110-54-3)

Test Results

LC50 Fathead minnow (*Pimephales promelas*): 2.101 mg/l 96.00 hours

Ecotoxicity

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

Environmental effects

Toxic to aquatic organisms. Bioaccumulation is unlikely to be significant because of the low water solubility of this product. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Aquatic toxicity

Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Persistence and degradability

The product is not expected to be biodegradable.

Partition coefficient

Not available

13. Disposal Considerations

Disposal instructions

Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.

Waste from residues / unused products

Dispose of in accordance with local regulations.

Contaminated packaging

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. Offer rinsed packaging material to local recycling facilities.

14. Transport Information

TDG

Proper shipping name	HEXANES
Hazard class	3
UN number	UN1208
Packing group	II



TDG

15. Regulatory Information

Canadian regulations

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status

Controlled

WHMIS classification

B2 - Flammable/Combustible
D2A - Other Toxic Effects-VERY TOXIC
D2B - Other Toxic Effects-TOXIC

WHMIS labeling



Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

Saf-T-Data

Health: 2 - Moderate (Life)
Flammability: 3 - Severe (Flammable)
Reactivity: 1 - Slight
Contact: 3 - Severe (Life)
Lab Protective Equip: DB - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
Storage Color Code: R - Red (Flammable)

16. Other Information

NFPA ratings

Health: 2
Flammability: 3
Instability: 0

Disclaimer

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Issue date

08-26-2011

This data sheet contains changes from the previous version in section(s):

Exposure Controls / Personal Protection: Respiratory protection