

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Hexane (S)
MSDS Number: 003457
Synonyms: Mixed Hexanes
Intended Use: Solvent
Manufacturer/Supplier: ConocoPhillips Specialty Solvents
PO Box 358
Borger, Texas 79008-0358
Emergency Health and Safety Number: Chemtrec: 800-424-9300 (24 Hours)
Customer Service: 800-696-4240
<http://solvents.conocophillips.com>
Technical Information: 800-696-4240
MSDS Information: Internet: <http://w3.conocophillips.com/NetMSDS/>

2. HAZARDS IDENTIFICATION

Emergency Overview

NFPA

DANGER!

Extremely Flammable Liquid and Vapor
Eye and Skin Irritant
Aspiration Hazard
Target Organ Hazard



Appearance: Colorless
Physical Form: Liquid
Odor: Mild

Potential Health Effects

Eye: Eye irritant. Contact may cause stinging, watering, redness, and swelling.

Skin: Skin irritant. Contact may cause redness, itching, a burning sensation, and skin damage. Prolonged or repeated contact can defat the skin, causing drying and cracking of the skin, and possibly dermatitis (inflammation). Contact may result in skin absorption but symptoms of toxicity are not anticipated by this route alone under normal conditions of use.

Inhalation (Breathing): Low degree of toxicity by inhalation.

Ingestion (Swallowing): Low degree of toxicity by ingestion. ASPIRATION HAZARD - This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the digestive tract, irritation of the respiratory tract, headaches, nausea, weakness and signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

Other Comments: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage (sometimes referred to as Solvent or Painters' Syndrome). Intentional misuse by deliberately concentrating and inhaling this material may be harmful or fatal.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders, eye disorders, respiratory (asthma-like) disorders and nervous system disorders. Exposure to high concentrations of this material may increase the sensitivity of the heart to certain drugs. Persons with pre-existing heart disorders may be more susceptible to this effect (see Section 4 - Note to Physicians).

See Section 11 for additional Toxicity Information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS	Concentration*
n-Hexane	110-54-3	>60
Other Hexanes	VARIOUS	<40

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

4. FIRST AID MEASURES

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. Remove contact lenses if present and easy to do. For direct contact, hold eyelids apart and flush the affected eye(s) with clean water for at least 15 minutes. If irritation persists, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek medical attention.

Ingestion (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

Notes to Physician: Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

5. FIRE-FIGHTING MEASURES

NFPA 704 Hazard Class

Health: 1 Flammability: 3 Instability: 0 (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Unusual Fire & Explosion Hazards: Extremely flammable. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Extremely flammable. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use foam on spills to minimize vapors (see Section 5). Use water sparingly to minimize environmental contamination and reduce disposal requirements. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802). If spill/release in excess of EPA reportable quantity (see Section 15) is made into the environment, immediately notify the National Response Center (phone number 800-424-8802).

Methods for Containment and Clean-Up: Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling: Wear eye/face protection. Wear protective gloves. Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. Do not breathe vapors or mists. Use good personal hygiene practices and wear appropriate personal protective equipment.

Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharge. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Conditions for safe storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component	US-ACGIH	OSHA	Other
n-Hexane	Skin TWA: 50 ppm	TWA: 1800 mg/m ³ TWA: 500 ppm	---

8. EXPOSURE CONTROLS / PERSONAL PROTECTION			
Other Hexanes	TWA: 500 ppm STEL: 1000 ppm	---	---

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye protection (such as splash goggles) that meets or exceeds ANSI Z.87.1 is recommended when there is potential liquid contact to the eye. Depending on conditions of use, a face shield may be necessary.

Skin/Hand Protection: The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Suggested protective materials: Nitrile

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with organic vapor cartridges/canisters may be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

Appearance:	Colorless
Physical Form:	Liquid
Odor:	Mild
Odor Threshold:	No data
pH:	Not applicable
Vapor Pressure:	5.6 psia (Reid VP) @ 100°F
Vapor Density (air=1):	approximately 3
Boiling Point/Range:	145-156°F / 63-69°C
Melting/Freezing Point:	No data
Solubility in Water:	Negligible
Partition Coefficient (n-octanol/water) (Kow):	No data
Specific Gravity:	0.678 @ 60°F (15.6°C)
Bulk Density:	5.646 lbs/gal
Percent Volatile:	100%
Evaporation Rate (nBuAc=1):	8.10
Flash Point:	-15°F / -26°C
Test Method:	Tag Closed Cup (TCC), ASTM D56
LEL (vol % in air):	1.2
UEL (vol % in air):	7.7
Autoignition Temperature:	437°F / 225°C

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated conditions of storage and handling. Extremely flammable liquid and vapor. Vapor can cause flash fire.

Conditions to Avoid: Avoid high temperatures and all sources of ignition. Prevent vapor accumulation.

Materials to Avoid (Incompatible Materials): acids and oxidizers such as chlorine and other halogens, chromates, perchlorates, peroxides and oxygen.

Hazardous Decomposition Products: Not anticipated under normal conditions of use.

Hazardous Polymerization: Not known to occur.

11. TOXICOLOGICAL INFORMATION

Chronic Data:

n-Hexane

Target Organs: Excessive exposure to n-hexane can result in peripheral neuropathies. The initial symptoms are symmetrical sensory numbness and paresthesias of distal portions of the extremities. Motor weakness is typically observed in muscles of the toes and fingers but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. The neurotoxic properties of n-hexane are potentiated by exposure to methyl ethyl ketone and methyl isobutyl ketone.

Reproductive: Prolonged exposure to high concentrations of n-hexane (>1,000 ppm) has resulted in decreased sperm count and degenerative changes in the testes of rats but not those of mice.

Other Hexanes

Target Organs: A mixture of hexane isomers, free of n-hexane, did not produce neurotoxic effects in rats exposed to 500 ppm for six months.

Acute Data:

Component	Oral LD50	Dermal LD50	Inhalation LC50
n-Hexane	25,000 g/kg (Rat): 28.7 g/kg(Rat)	>2,000 mg/kg (Rabbit)	>3,367 ppm (4-hr., Rat)
Other Hexanes	>5,000 mg/kg (similar material)	>2,000 mg/kg (similar material)	No data

12. ECOLOGICAL INFORMATION

Not evaluated.

13. DISPOSAL CONSIDERATIONS

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste. However, it would likely be identified as a federally regulated RCRA hazardous waste for the following characteristic(s) shown below. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard. Container residues and rinseates could be considered to be hazardous wastes.

EPA Waste Number(s)

- D001 - Ignitability characteristic

14. TRANSPORTATION INFORMATION

U.S. Department of Transportation (DOT)

Shipping Description: Hexanes, 3, UN1208, II, RQ *
Non-Bulk Package Marking: Hexanes, UN1208
Non-Bulk Package Labeling: Flammable liquid
Bulk Package/Placard Marking: Flammable / 1208

14. TRANSPORTATION INFORMATION

Packaging - References: 49 CFR 173.150; 173.202; 173.242
(Exceptions; Non-bulk; Bulk)
Hazardous Substance: See Section 15 for RQ's
Emergency Response Guide: 128
Note: * Omit "RQ" if the amount in a single packaging is less than the EPA Reportable Quantity amount shown in Section 15 for the hazardous substance.

Shipping description may be modified by placing the UN or NA number as the first element. This order becomes mandatory on January 1, 2013.

International Maritime Dangerous Goods (IMDG)

Shipping Description: UN1208, Hexanes, 3, II, (-26°C cc)
Non-Bulk Package Marking: Hexanes, UN1208
Labels: Flammable liquid
Placards/Marking (Bulk): Flammable / 1208
Packaging - Non-Bulk: P001
EMS: F-E, S-D
Note: U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25.

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

UN/ID #: UN1208
Proper Shipping Name: Hexanes
Hazard Class/Division: 3
Subsidiary risk: None
Packing Group: II
Non-Bulk Package Marking: Hexanes, UN1208
Labels: Flammable liquid
ERG Code: 3H
Note: U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 24.

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	Y305	305	307
Max. Net Qty. Per Package:	1 L	5 L	60 L

15. REGULATORY INFORMATION

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health: Yes
Chronic Health: Yes
Fire Hazard: Yes
Pressure Hazard: No
Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:

This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:

Component	Concentration*	de minimis
n-Hexane	>60	1.0%

EPA (CERCLA) Reportable Quantity (in pounds):

This material contains the following chemicals subject to the reporting requirements of 40 CFR 302.4:

Component	RQ
n-Hexane	5000 lb

California Proposition 65:

This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

Canadian Regulations:

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

WHMIS Hazard Class
B2 - Flammable Liquids
D2B

National Chemical Inventories:

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.
All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

16. OTHER INFORMATION

Issue Date:	30-Jun-2008
Status:	Final
Previous Issue Date:	23-Feb-2007
Revised Sections or Basis for Revision:	Physical Properties (Section 9)
MSDS Number:	003457

MSDS Legend:

ACGIH = American Conference of Governmental Industrial Hygienists; ADR = Agreement on Dangerous Goods by Road; CAS = Chemical Abstracts Service Registry; CEILING = Ceiling Limit (15 minutes); EINECS = European Inventory of Existing Commercial Chemical Substances; EPA = [US] Environmental Protection Agency; Germany-DFG = Deutsche Forschungsgemeinschaft; IARC = International Agency for Research on Cancer; ICAO/IATA = International Civil Aviation Organization / International Air Transport Association; IMDG = International Maritime Dangerous Goods; Ireland-HSA = Ireland's National Health and Safety Authority; LEL = Lower Explosive Limit; N/A = Not Applicable; N/D = Not Determined; NIOSH = National Institute for Occupational Safety and Health; NTP = [US] National Toxicology Program; OSHA = [US] Occupational Safety and Health Administration; PEL = Permissible Exposure Limit; RID = Regulations Concerning the International Transport of Dangerous Goods by Rail; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value; TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; UK-EH40 = United Kingdom EH40/2005 Workplace Exposure Limits

Disclaimer of Expressed and implied Warranties:

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