

SAFETY DATA SHEET



n-Pentane

This Safety Data Sheet contains information concerning the potential risks to those involved in handling, transporting and working with the material, as well as describing potential risks to the consumer and the environment. This information must be made available to those who may come into contact with the material or are responsible for the use of the material. This Safety Data Sheet is prepared in accordance with formatting described in the Regulation (EU) No453/2010, and described in CLP Regulation (EU) No 1272/2008.

Section 1. Substance name and company identification

1.1 Product identifier

Common name	n-Pentane
Synonyms	Normal Pentane
Chemical class	Alkane
REACH registration	This substance is derived from natural gas condensate and meets the criteria for exemption from REACH registration under Annex V.

1.2 Relevant identified uses of the substances or mixture and of the company/undertaking

Solvent, blowing agent for polystyrene, chemical intermediate

1.3 Details of the supplier of the safety data sheet

Manufacturer	South Hampton Resources, Inc. 7752 FM 418 West Silsbee, Texas 77656 USA Tel: + 1 409-385-8300 E mail: customerservice@southhamptonr.com
EU Only Representative	TSGE Concordia House, St James Business Park, Grimbald Crag Court, Knaresborough, North Yorkshire, HG5 8QB, United Kingdom Tel: +44 (0) 1423 799 633 Fax: +44 (0) 1423 797 804

1.4 Emergency telephone number

In case of emergency	Tel. +1 703 527 3887 (CHEMTREC)
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Section 2. Hazards Identification

2.1 GHS Classification

Flammable liquids, Category 2
Eye irritation, Category 2B
Specific target organ systematic toxicity-single exposure, Category 3
Aspiration hazard, Category 1
Acute aquatic toxicity, Category 2

2.2 GHS Label elements

Pictograms:



Signal Word: Danger

Hazard Statements

H225 Highly flammable liquid and vapour
 H304 May be fatal if swallowed and enters airways
 H320 Causes eye irritation
 H336 May cause drowsiness or dizziness.
 H401 Toxic to aquatic life
 H411 Toxic to aquatic life with long lasting effects

Precautionary statements

P210 Keep away from heat/ sparks/open flames/hot surfaces. — No smoking.
 P243+P240 Take precautionary measures against static discharge. Ground/bond container and receiving equipment.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection
 P301+P310+P331 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.
 P403+P235 Store in a well-ventilated place. Keep cool. Keep container tightly closed
 P370+P378 In case of fire: Use foam, carbon dioxide or dry powder for extinction.
 P501 Dispose of product/container in accordance with all applicable regulations.

Directive 67/548/EEC



Extremely
Flammable

Dangerous for
the Environment

Harmful

Risk phrases

R12 Extremely flammable
 R65 Harmful: may cause lung damage if swallowed
 R66 Repeated exposure may cause skin dryness or cracking
 R67 Vapors may cause drowsiness and dizziness
 R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety Phrases

S2 Keep out of the reach of children

- S9 Keep container in a well-ventilated place
 S16 Keep away from sources of ignition – No smoking
 S29 Do not empty into drains
 S33 Take precautionary measures against static discharges
 S61 Avoid release to the environment. Refer to special instructions/safety data sheet
 S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label

2.3 Other hazards

PBT:	This substance is not a PBT substance.
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Section 3. Composition

Name	EC No	CAS No	Concentration
n-Pentane	203-692-4	109-66-0	99% min
Isopentane	201-142-8	78-78-4	1% max

Section 4. First Aid Measures

4.1 Description of first aid measures

Inhalation

If breathing difficulties, dizziness, or light-headedness occur when working in areas with high vapour concentrations, remove victim to fresh air. If victim experiences continued breathing difficulties, keep patient warm and at rest, and seek medical attention. If breathing stops, begin artificial respiration and seek immediate medical attention.

Skin contact

If this product comes into contact with the skin, wash with soap and water. Seek medical attention if irritation persists. Remove and wash contaminated clothing before re-use.

Accidental eye contact

If this product comes into contact with the eyes, flush with large quantities of water for several minutes, while gently holding the eyelids open. Seek medical attention if irritation persists.

Ingestion

If this product is swallowed, DO NOT INDUCE VOMITING. Give small quantities (<250 ml) of water to drink. Never give anything by mouth to an unconscious person. Seek immediate medical attention

Notes to doctor/physician

Aspiration of solvent may cause chemical pneumonitis.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: n-pentane may cause dizziness and drowsiness if inhaled, and high concentrations may result in central nervous system depression, and loss of consciousness.

Ingestion: Symptoms of ingestion may include nausea, vomiting, as well as symptoms of dizziness, drowsiness and central nervous system depression. If vomiting occurs, n-pentane may be aspirated into the lungs, with a risk of chemical pneumonitis.

4.3 Indication of any immediate attention and special treatment needed

If ingested or inhaled seek medical attention immediately.

Section 5. Firefighting Measures

5.1 Extinguishing media

Small fires: Use foam, carbon dioxide or dry powder extinguisher.

Large fires: Use foam to extinguish fires. Water spray should not be used, as n-pentane is lighter than water and may form pools of burning liquid on top of water. Keep adjacent containers cool using water spray.

5.2 Special hazards arising from the substance or mixture

N-pentane is extremely flammable. Remove all sources of ignition. Vapors are heavier than air and may travel considerable distances to a source of ignition and flash back. Vapor/air mixtures may be explosive. Electrostatic discharges may cause fire and/or explosion.

5.3 Advice for fire-fighters

Wear positive pressure Self Contained Breathing Apparatus.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all ignition sources and evacuate unnecessary personnel from the area. Ventilate the area if possible. Wear suitable protective clothing including solvent resistant gloves and coveralls. If vapor concentrations are high, respiratory protective equipment may be required. See section 8 for more information.

6.2 Environmental precautions

Prevent entry into sewers and watercourses. If product enters sewers or watercourses, inform the appropriate environmental authorities.

6.3 Method for cleaning up

Small spills: Remove all ignition sources. Use non-sparking hand tools. Take precautions to avoid electrostatic discharge. Absorb spillage in a non-combustible absorbent, e.g. sand or vermiculite, and place in a suitable container for disposal.

Large spills: Remove all ignition sources. Use non-sparking hand tools. Contain spill and cover if possible to reduce evaporation. Transfer to a suitable container by mechanical means. Take precautions to avoid static discharge, e.g. by grounding containers, etc.

6.4 Reference to other sections

Refer to section 8 of SDS for personal protection details.

Section 7. Handling and Storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Use only in well ventilated areas. n-Pentane is extremely flammable. Avoid contact with all ignition sources, including hot surfaces. Take precautions to avoid electrostatic discharges, such as grounding of containers and equipment, and restricting flow rates. Vapors are heavier than air and may accumulate in low lying areas and below ground areas such as ducts and sewers.

7.2 Condition for safe storage, including any incompatibilities

Store in a well ventilated area, away from all ignition sources. If stored in drums, keep out of direct sunlight.

Section 8. Exposure Controls/Personal Protection**8.1 Control parameters**

Substance	TWA	Source, Type
n-Pentane	1000 ppm, 3000 mg/m ³	OSHA / EU IOELV
n-Pentane	600 ppm, 1800 mg/m ³	ACGIH / UK EH40
Isopentane	600 ppm, 1800 mg/m ³	ACGIH

8.2 Exposure controls

Ensure there is sufficient ventilation of the area. The floor of the storage room must be impermeable to prevent the escape of liquids. General mechanical ventilation may be sufficient to keep product vapor concentrations within specified time-weighted TLV ranges. If general ventilation proves inadequate to maintain safe vapor concentrations, supplemental local exhaust may be required. Other special precautions such as respiratory masks or environmental containment devices may be required in extreme cases.

Respiratory protection

Use only in well ventilated area. If high exposure levels are likely, then suitable respiratory protection will be required. Very high vapor concentrations may result in oxygen displacement and self-contained breathing apparatus or airline may be required.

Hand Protection

Wear suitable chemical resistant gloves recommended for use with hydrocarbon solvent. Nitrile gloves may be suitable, but glove manufacturers' specifications should always be checked first. Natural rubber gloves are not suitable. Change gloves in accordance with manufacturer recommendations. If gloves are damaged during use, remove immediately and wash hands before replacing with new gloves.

Eye protection

Wear suitable eye protection, safety glasses or goggles, when handling this product.

Skin protection

Aprons or coveralls made of fire retardant material are recommended. These should be changed after use or if contaminated. Wash before re-use.

Section 9. Physical and Chemical Properties**9.1 Information on basic physical and chemical properties**

Appearance:	Colorless Liquid
Odor:	Gasoline-like odor
Molecular weight:	72
pH:	not applicable
Melting point/freezing point:	-202°F/-130°C
Approximate boiling range :	90-100°F/32-38°C
Flash point:	-40°F/-40°C
Evaporation rate:	not applicable
Flammability limits in air	
Lower:	1.4 v%
Upper:	8.3 v%
Reid vapor pressure at 100°F:	16.0 psia
Relative vapor density (Air=1.0)	2.5
Density at 60°F:	0.63 kg/l
Solubility in water:	negligible
Partition Coefficient: n-octanol/water:	3.45

Auto-ignition temperature: 588°F/308°C
Viscosity: not applicable
Oxidizing properties: none

Sources of Information:

1. Company product testing
2. Hawley's Condensed Chemical Dictionary revised by N. Irving Sax and Richard J. Lewis, and
3. CHRIS directory

Section 10. Stability and Reactivity**10.1 Reactivity**

Stable under normal conditions.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4 Conditions to avoid

Keep away from sources of ignition.

10.5 Incompatible materials

This product is incompatible with strong oxidizing agents, strong acids and bases, and selected amines.

10.6 Hazardous decomposition products

None

Section 11. Toxicological Information**11.1 Information on toxicological effects****Acute Toxicity:**

LD₅₀ (Rat, oral) >2000 mg/kg

LC₅₀ (Mouse, inhalation) 295 mg/l/2 hour

LC₅₀ (Rat, inhalation) 364 g/m³/4 hour

Harmful when inhaled in high concentrations or ingested. n-pentane may cause dizziness and drowsiness if inhaled, and high concentrations may result in central nervous system depression, and loss of consciousness. Symptoms of ingestion may include nausea, vomiting, as well as symptoms of dizziness, drowsiness and central nervous system depression. If vomiting occurs, n-pentane may be aspirated into the lungs, with a risk of chemical pneumonitis.

Irritation: n-pentane can be irritating to the eye, may cause redness.

Corrosivity: Not corrosive

Sensitisation: Not known to be a sensitizer

Repeated dose toxicity: Prolonged or repeated contact of this product will result in defatting of the skin, causing dryness and cracking.

Carcinogenicity: Not expected to be carcinogenic.

Mutagenicity: Not expected to be mutagenic

Toxicity for reproduction: Not expected to be toxic to reproduction.

Route of exposure: Inhalation and ingestion

Symptoms related to the physical, chemical and toxicological characteristics: n-pentane may cause dizziness and drowsiness if inhaled and high concentrations may result in central nervous system depression, and loss of consciousness. Symptoms of ingestion may include nausea, vomiting, as well as symptoms of dizziness, drowsiness and central nervous system depression. If vomiting occurs, n-Pentane may be aspirated into the lungs, with a risk of chemical pneumonitis.

Section 12. Ecological Information

12.1 Toxicity

EC50 (*Oncorhynchus mykiss*, rainbow trout) 4.26 mg/l (96 hour)

EC50 (*Daphnia magna*) 2.7 mg/l (48 hour)

N-pentane is classified as toxic to aquatic organisms and likely to cause long term effects in the environment.

12.2 Persistence and degradability

N-pentane is readily biodegradable in aquatic systems, however, in view of its high evaporation rate, n-pentane is expected to volatilize rapidly from water sources into the atmosphere, where it will be degraded by photochemical reaction.

12.3 Bio accumulative potential

No information available

12.4 Mobility in soil

No information available

12.5 Results of PBT and vPvB assessment

No information available

12.6 Other adverse effects

No further details

Section 13. Disposal Considerations

13.1 Waste treatment methods

Recover and recycle product if possible. If recovery and recycling are not possible, n-pentane may be disposed of by incineration.

Please follow all local, regional, national and international laws.

Section 14. Transport Information

14.1 UN number

1265

14.2 USDOT (United States Department of Transportation) (Domestic)

USDOT Proper Shipping Name: Pentanes

Hazard Classification: 3, Packing Group: 1

Label: Flammable Liquid

Placard: Flammable Liquid

14.3 IMO/IMDG (International Maritime Dangerous Goods) (Water)

IMO Proper Shipping Name: Pentanes
Hazard Classification: 3, Packing Group: 1
Label: Flammable Liquid

14.4 IATA (International Air Transport Association)

Proper Shipping Name: Pentanes
Hazard Classification: 3, Packing Group: 1
Label: Flammable Liquid

14.5 ADR (Agreement on Dangerous Goods by Road (Europe))

Proper Shipping Name: Pentanes
Hazard Classification: 3, Packing Group: 1, Environmentally Hazardous

Section 15. Regulatory Information**15.1 Clean Air Act**

- This product neither contains nor was it manufactured with any class 1 or class 2 ozone depleting substances.
- Under Section 112 (r), 40 CFR Part 68, the threshold quantity for both n-pentane and isopentane is 10,000 lbs.

15.2 Emergency Planning and Community Tight-To-Know Act (EPCRA)

- Section 302- This product does not contain any constituents that are classified as an extremely hazardous substance.
- Section 311/312 (Tier II) - This product is considered a fire hazard and an acute health hazard.
- Section 313- This product contains no toxic chemicals.

15.3 California Office of Environmental Health Hazard Assessment

- Proposition 65- This product contains none of the chemicals which may cause cancer or birth defects as listed in this legislation.

15.4 Coalition of Northeast Governors (CONEG)

- This product contains no lead, mercury, cadmium, or hexavalent chromium.

15.5 New Jersey Right-to-Know

- Normal pentane and isopentane both appear on this state's hazardous substance list.

15.6 Pennsylvania Right-to-Know

- Normal pentane and isopentane both appear on this state's hazardous substance list.

15.7 Toxic Substance Control Act (TSCA)

- All constituents of this product are listed in TSCA.

15.8 Other Inventories

- The constituents of this product are known to be listed on the following country inventories:
 - **Canada (DSL)**
 - **Japan (ENCS)**
 - **Australia (AICS)**
 - **Philippines (PICCS)**
 - **China (IECSC)**
 - **Korea (KECI)**

Section 16. Other Information**Hazard Ratings:****GHS:**

Health: 4
Flammability: 1
Reactivity: 5

NFPA:

Health: 1
Fire: 4
Reactivity: 0
Specific Hazard: None

HMIS:

Health: 1
Flammability: 4
Reactivity: 0

The above information is believed to be correct as of the date hereof. However no warranty of merchantability fitness for any use or any other warranty is expressed or is to be implied regarding the accuracy of this data, the results to be obtained from the use of the material, or the hazards connected with such use. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar, and since data made available subsequent to the data hereof may suggest modification of the information, we do not assume responsibility for the results of its use. This information is furnished on the condition that the person receiving it shall make his own determination as to the suitability of the material for his particular purpose and on the condition that he assumes the risk of his use thereof.