MATERIAL SAFETY DATA SHEET

SOUTH HAMPTON RESOURCES

n-Pentane

This Material 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 Material Safety Data Sheet is prepared in accordance with formatting described in the Regulation (EU) No 453/2010, and describe in CLP Regulation (EU) No 1272/2008.

Section 1. Identification of the substance/mixture and of the company/undertaking

1.1 Product Identifier

Common name	**n-Pentane**
Synonyms	normal Pentane
Formula	$CH_3[CH_2]_3CH_3$
Chemical class	Low boiling aliphatic hydrocarbon

1.2 Relevant Identified uses of the substance or mixture and of the company/undertaking

Solvent, blowing agent for polystyrene, chemical intermediate

1.3 Details of the supplier of the material safety data sheet

Manufacturer	South Hampton Resources, Inc. 7752 FM 418 West Silsbee, Texas 77656 USA Tel: + 1 409-385-8300 Control Room: 1-409-385-8300
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

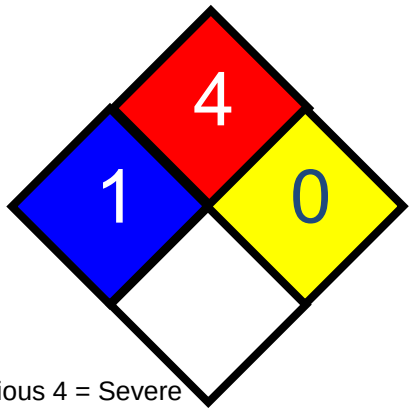
In case of emergency	**CHEMTREC** (24HR Emergency Telephone), call: 1-800-424-9300 International CHEMTREC, call: 1-703-527-3887 Health emergencies- call Los Angeles Poison control Center: (24 hours) 1-213-664-2121

Section 2. Hazards Identification

2.1 Label elements

NFPA 704

CAS Number: 109-66-0
Molar Mass: 72.15 g/mole
Density: 0.626 g/cm^3
Boiling Point: 36.1°C
Precautions: Flammable, Irritant



NFPA Ratings: Health: 1 Fire: 4 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

HMIS Ratings: **Health: 2 Fire: 3 Physical Hazard: 0**
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

Emergency Overview: Keep away from heat, sparks and flame. This material is an eye and skin irritant. Gross inhalation overexposure may cause: Central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness or death. Warning: Extremely Flammable. Causes respiratory irritation.

General Description: Watery liquid with a gasoline-like odor, Floats on water. Produces an irritating vapor. (USCG, 1999)

2.2 GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquid: Flammable liquid 1 – extremely flammable liquid and vapor

Aspiration hazard: Asp. Tox. 1 – may be fatal if swallowed and enters airways

Specific target organ toxicity – single: STOT SE 3 – May cause drowsiness or dizziness

Aquatic Chronic 2 – hazardous to the aquatic environment – toxic to aquatic life with long lasting effects

F+; R12 / Xn; R65, R66, R67 / N; R51/R53 Extremely flammable
Harmful: may cause lung damage if swallowed
Repeat exposure may cause skin dryness or cracking
Vapors may cause drowsiness and dizziness
Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment

Risk advice to man and the environment: Contact with liquid may cause cold burns / frost bite

Hazard Statements

H225 Highly flammable liquid and vapor
H304 May be fatal if swallowed and enters airways
H336 May cause drowsiness or dizziness
H411 Toxic to aquatic life with long lasting effects
EUH066 Repeated exposure may cause skin dryness or cracking

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

2.3 Other hazards

PBT:	This substance is not identified as a PBT substance.

Section 3. Composition

Name	EC No	CAS No	Concentration	Classification according to CHIP	Classification according to CLP
Pentane	203-692-4	109-66-0	>99%	[F+], R12; [Xn], R65, R66, R67; [N], R51/53	Flam. Liq.2, H225; Asp. Tox 1, H304; Skin Irrt. 2, H315; STOT SE 3, H336; Aquatic chronic 2, H 411.

See section 16 for full description of the text of each classification.

Section 4. First Aid Measures

4.1 Description of first aid measure

Inhalation
If breathing difficulties, dizziness, or light-headedness occurs when working in areas with high vapor 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, remove contaminated clothing and wash with soap and water. Seek medical attention if irritation persists. 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, whilst 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 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.

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2012)

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2012)

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 and fire kit.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all ignition sources ad 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 electric 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 (earthing) containers, etc.

Reportable quantity: Notify coast guard national response center, phone#: 1-800-424-8802, if spill is greater than 5,000 lbs.

6.4 Reference to other sections

Refer to section 8 of MSDS 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 ignition sources, including hot surfaces. Take precautions to avoid electrostatic discharges, such as ground (earthing) 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 incompatibles

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

7.3 specific end use(s)

No further details

Section 8. Exposure Controls/Personal Protection

8.1 Control parameters

CAS number:	109–66–0
NIOSH REL:	120 ppm (350 mg/m^3) TWA, 610 ppm (1,800 mg/m^3) 15-minute CEILING
Current OSHA PEL:	1,000 ppm (2,950 mg/m^3) TWA
1989 OSHA PEL:	600 ppm (1,800 mg/m^3) TWA, 750 ppm (2,250 mg/m^3) STEL
1993-1994 ACGIH TLV:	600 ppm (1,770 mg/m^3) TWA, 750 ppm (2,210 mg/m^3) STEL
Description of substance:	Colorless liquid with a gasoline-like odor.
LEL :	1.5% (10% LEL, 1,500 ppm)
Original (SCP) IDLH:	15,000 ppm [LEL]

Class IA flammable liquid	Fl.P. below 73 °F and BP below 100 °F.

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 devises may be required in extreme cases.

Respiratory protection

Use only in well-ventilated area. If exposure levels are likely to exceed the OEL 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 manufacturers recommendations. If gloves are damaged during use, remove immediately and wash hands before replacing with new gloves.

Eye protection
Wear suitable eye protection, meeting the requirements of BS EN166 3, when handling this product.

Skin protection
Aprons or coveralls are recommended. These should be changed after use or if contaminated. Wash before re-use.

8.3 Respirator Recommendations

NIOSH

Up to 1200 ppm:
(APF = 10) Any supplied-air respirator

Up to 1500 ppm:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode
(APF = 50) Any self-contained breathing apparatus with a full face piece
(APF = 50) Any supplied-air respirator with a full face piece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full face piece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full face piece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-face piece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Section 9. Physical and Chemical Properties

9.1 information on basic physical and chemical properties

Chemical Formula: C5H12

Flash Point:	-57 ° F
Lower Explosive Limit (LEL):	1.5 %
Upper Explosive Limit (UEL):	7.8 %
Auto-ignition Temperature:	500 ° F
Melting Point:	-202 ° F
Vapor Pressure:	400 mm Hg at 65.3 ° F; 426 mm Hg at 68° F
Vapor Density (Relative to Air):	2.48
Specific Gravity:	0.626 at 68.0 ° F
Boiling Point:	97 ° F at 760.0 mm Hg
Molecular Weight:	72.15
Water Solubility:	less than 1 mg/mL at 70° F
IDLH:	1500 ppm Based on 10% of the lower explosive limit.

9.2 Other information

No further details

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 polymerization 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: LD_{50} (Rat, oral) >2000 mg.kg
LC_{50} (Mouse, Inhalation) 295 mg/1/2 hour
LC_{50} (Rat, Inhalation) 364 g/m^3/4 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 is not classified as irritating to the eye, but may cause redness and irritation.

Corrosivity: Not corrosive

Sensitization: Not know 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.

Target Organs: Eyes, skin, respiratory system, central nervous system

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

Route of exposure: Inhalation, ingestion, skin and/or eye contact

Symptoms related to the physical, chemical and toxicological characteristics: n-Pentane 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 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 volatizes 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. Transportation Information

14.1 UN number

1265

14.2 UN proper shipping name

Pentanes

14.3 Transport hazard class(es)

3

14.4 Packing group

I

14.5 Environmental hazards

Environmental Hazards Substance

14.6 Special precautions for user

Keep away from sources of heat and ignition.

14.7 Transport in bulk according to Annex II of Marpol73/78 and the IBC Code

Not applicable to packaged goods

ADR HIN 33
EAC 3YE

Section 15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI	RCRA Code	CAA 112(r) RMP TQ
Pentane	109-66-0						10000

15.2 Chemical safety assessment

A chemical safety assessment has not been conducted.

Section 16. Other Information

Other information

This safety data sheet is prepared in accordance with Regulation (EC) No 453/2010.

*Indicates text in the SDS which has changed since the last revision.

Phrases used in Section 3

R12 Extremely flammable
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R65 Harmful: may cause lung damage if swallowed
R66 Repeated exposure may cause skin dryness or cracking
R67 Vapors may cause drowsiness and dizziness
H225 Highly flammable liquid and vapor
H304 May be fatal if swallowed and enters airways
H315 Causes skin irritation
H336 May cause drowsiness or dizziness
H411 Toxic to aquatic life with long lasting effects
EUH066 Repeated exposure may cause skin dryness or cracking

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of addition provisions which complete these regulations. Refer to all applicable national, International and local laws.