

 <p>National Petrochemical Company(NPC)</p>	<p align="center">Material Safety Data Sheet (MSDS)</p> <p>According to the Directives 91/155/CEE-2001/58/CE-ISO 11014-1</p>	<p>Page: 1 of 9</p> <p>Revision Number: 1</p>
	<p>Product Name:</p> <p align="center">Hexane</p>	 <p>Reactivity Flammability Health</p>

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/ UNDERTAKING



Identification of the substance or preparation:	Hexane
Country of origin:	Iran (Islamic Republic of Iran)
CAS Number:	110 - 54 - 3
Synonyms:	n-hexane, normal hexane, hexyl hydride
Company/undertaking identification	National Petrochemical Company Iran Petrochemical Commercial Company (IPCC)
Manufacturer subcontractor:	None
Emergency phone number:	00982188881735
Contact email:	msds@petrochem-ir.net
Fax:	00982188839511
Association/Organization:	None
Use of the substance/Preparation:	None

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous substances:	Hexane is harmful and highly flammable liquid or vapor. Pentane vapors can form an explosive mixture with air.
Hazardous label(s):	
Toxicological characteristics:	Hexane may be toxic to the nervous system, skin and central nervous system (CNS).
Substances present at a concentration below the minimum danger:	-
Other component:	Prolonged or repeated exposure to the substance can produce target organ damage.

3. IDENTIFICATION OF HAZARDS

Risk phrases:	<ul style="list-style-type: none"> -Highly flammable liquid and vapor. Vapor may cause flash fire. -Harmful or fatal if swallowed, it could enter lungs and damage it. -May cause respiratory tract irritation if inhaled. -Vapor harmful.
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-May cause eye irritation
 -Cause skin irritation
 -Inhalation may cause nervous system effects
 -contains material may cause central nervous system effects.

Skin contact: Causes skin irritation. Prolonged repeated contact may cause drying and cracking of the skin. Symptoms may include pain, itching, discoloration, swelling and blistering.

Eye contact: Causes eye irritation and prolonged impairment of your vision that depend on the speed of first aid treatment.

Inhalation : High concentration may cause nausea, headache, dizziness, unconsciousness, coma and death.
Respiratory tract irritation may include coughing and difficulty in breathing. CNS effects may occur, at high concentration CNS depression, tremors, convulsion.

If swallowed: May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. May cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. Once in the lungs it is very difficult to remove and can cause severe injury or death.

Other information:

4. FIRST AID MEADURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor
NEVER induce swallowing in an unconscious person.

Skin contact :



Remove contaminated clothing and shoes. Wash with soap and water. If irritation persist or develop get medical attention. Wash clothing before reuse.

In case of exposure by inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately if breathing difficulties continue.

In case of splashes or contact with eyes:

Flash with plenty of water. Remove any

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**In case of swallowing:
Note of physician:**

Note to physicians

contact lenses. Continue flushing eyes with plenty of water for at least 15 minutes. Get medical attention. Do not induce vomiting. Loose in tight clothing like tie, collar or belt. Get medical attention immediately. Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonias

5. FIRE FIGHTING MEASURES

Flammable class:

**Highly flammable liquid and vapor.
Vapor may cause flash fire.
Auto ignition temperature: 225 C
Flash point : -22 C
LEL: 1.1 UEL:7.7%**

Suitable extinguishing media:

**Small fire: use dry chemical and CO2
Large fire: use water spray or fog and foam
Cool containing vessels with water jet in order to prevent pressure build up and explode.**

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:

**Highly depend on combustion condition.
Mostly carbon oxides (CO, CO2)
Some undefined organic material may be released.**

Special protective equipment for fire fighting :

Other information:



6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Remove all sources of ignition safely. Evacuate contaminated area immediately. Monitor area by gas detector. Wear appropriate personal protective equipment when cleaning up spills.

Environmental precautions:

Protect from contamination of soil, water and under ground water.

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Methods for cleaning up and disposal:

Keep away from all sources of ignition and heat. Stop leak without risk. Absorb with dry earth, sands and non-combustible materials and put spilled material in appropriate waste disposal.

Prevent entry to sewers, basements. Be careful the concentration must not exceed than TLV.

ALL TOOLS FOR CLEANING MUST BE NON-SPARKING.

HANDLING EQUIPMENT MUST BE GROUNDED

Other information:

Local authorities and regulations must be considered as priority.

7. HANDLING AND STORAGE

The regulations relating to storage premises apply to workshop where the product is handled

Handling:

Keep away from heat and all sources of ignition.

Keep container tightly closed. Ground all equipments containing hexane .Avoid contact with skin, breathe vapors and fumes, ingest the material

Storage:

Keep away storages from heat and all sources of ignition. Store at cool and good ventilated condition. Protect from static charges.

Empty vessels may contain explosive mixtures and take care of that.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values:

OSHA(PEL): TWA 500 PPM inhalation

OSHA(PEL): TWA 1800 mg/m3 inhalation

ACGIH(TLV) : TWA 176 mg/m3 skin



ACGIH(TLV) : TWA 50 PPM skin

Consult with local authorities.

Exposure controls:

Effective ventilation. Remove sources of ignition from the working area.

Personal protective equipment:

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Eye protection:

Safety glasses, chemical goggles or face shields.

Respiratory protection:

If exposure may be greater than exposure limit wear a NIOSH approved respirator, such as air purifying respirator for organic vapors.

Use a positive pressure, air supplying respirator if there is potential for uncontrolled release or exposure levels are not known.

Hand protection:

gloves

Skin and body protection:

Appropriate clothing, gloves, boots that have good physical and chemical resistance.

Health measures:

Environmental exposure controls:

9. PHYSICAL AND CHEMICAL PROPERTIES

General information:

Hexane

Appearance (at 20°C):

Colourless liquid

Colour:

Colourless

Odour:

Gasoline-like or petroleum-like (slight)

PH (at 20°C):

Not applicable

Boiling point/range (°C):

67°C -68°C (152.6°F - 156.2 °F)

Melting point (°C):

-95°C (-139°F)

Flash point (°C):

-23 °C (-9.4 °F)

Flammability:

Highly flammable

Auto-ignition temperature(°C):

234 °C

Explosive properties:

Readily forms explosive mixture with air.

LEL: 1.2% UEL:7.7%

Specific gravity :

0.659

Vapour pressure (at 20°C):

2.5 PSIA (132 mmHg)

Vapour density (at 20°C):

3 (Air=1)

Evaporation rate :

28.6 (butyl acetate = 1)



Solubility (at 20°C):

water solubility:negilible

solubility in fats: soluble in oil

Other information:

None

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10. STABILITY AND REACTIVITY



Stability:	stable
Conditions to avoid:	Avoid from heat and all sources of ignition and incompatible materials. Readily forms explosive mixtures with air.
Material to avoid:	Oxidizing agent, chlorine, fluorine and magnesium per chlorate
Hazardous decomposition products:	Carbon mono oxide and carbon dioxide may form at decomposition temperature.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	- LD ₅₀ , oral, rat (mg.kg ⁻¹): 28700 - LC 50, rat (mg/m ³ /4hr) : 48000 PPM/4h - LD ₅₀ , oral, mouse (mg.kg ⁻¹): 446 - LCLO,mouse (g/m ³ /2hr) : 325 - LD ₅₀ , dermal (mg.kg ⁻¹):
Sub chronic – chronic toxicity:	No data available
Sensibilization:	No data available
Carcinogenicity:	No data available
Reproductive effects:	No data available
Human experience:	May cause impaired fertility
Other information:	Harmful by inhalation. Irritant. May cause CNS depression. Prolonged exposure may cause serious health damage

12. ECOLOGICAL INFORMATION

Ecotoxicity:	Harmful in the environment.
Bioaccumulative potential:	No information found
Mobility:	No information found
Persistence and degradability:	No information found
Other adverse effects:	May cause long-term adverse effects.

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13. DISPOSAL CONSIDERATIONS

Disposal of product: Waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

Disposal of packaging: Vessels and containers can be reuse if not damaged.
Vapors and air can form explosive mixture.

14. TRANSPORT INFORMATION

Land transport: Shipping name :Hexanes
UN No. : 1208
Hazard class. : 3
Packing group : II



ADR/RID: UN No. : 1208
Shipping name :Hexanes
Hazard class. : 2.1
Packing group : II
ADR
II

Packaging group: II

Maritime transport: Shipping name :Hexanes
UN No. : 1208
Hazard class. : 3
Packing group : II
-23 C

Air transport: RQ, HEXANES , 3 , UN 1208 , II

Other information : The description above may not apply to all shipping situations. Consult with appropriate Dangerous Goods Regulations for additional information.

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15. REGULATORY INFORMATION

Hazardous label(s):

Safety phrases:



- S2 Keep out the reach children.
- S9 Keep container in vitalized place.
- S 16 Keep away from sources of ignition - No smoking.
- S24 Avoid contact with skin.
- S 29 Do not empty into drains.
- S 33 Take precautionary measures against static discharges.
- S36/37 Wear suitable protective clothing and gloves.
- S51 Use only in well ventilated areas.
- S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.
- S62 If swallowed do not induce vomiting: seek medical attention immediately and show this container or label.

Risk phrases:

- R11 Highly flammable
- R20 Harmful by inhalation
- R21 Harmful in contact with skin
- R22 Harmful if swallowed
- R38 Irritation to skin
- R48 Danger of serious damage to health by prolonged exposure
- R 51/53 Toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.
- R62 Possible risk to impaired fertility.
- R 65 Harmful: may cause lung damage if swallowed.
- R 66 Repeated exposure may cause skin dryness or cracking.
- R 67 Vapors may cause drowsiness and dizziness

16. OTHER INFORMATION

None

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The contents and format of this MSDS are in accordance with EEC Commission Directive 2001/58/EC

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