

SECTION 1: Product and company identification

1.1. Product identifier

Name : Octanes
CAS No : 111-65-9
Formula : C₈H₁₈
Other means of identification : n-Octane, normal octane

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Industrial use. Use as directed.

1.3. Details of the supplier of the safety data sheet

Praxair, Inc.
10 Riverview Drive
Danbury, CT 06810-6268 - USA
T 1-800-772-9247 (1-800-PRAXAIR) - F 1-716-879-2146
www.praxair.com

1.4. Emergency telephone number

Emergency number : Onsite Emergency: 1-800-645-4633

CHEMTREC, 24hr/day 7days/week
— Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
(collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US classification

Flam. Liq. 2 H225
Asp. Tox. 1 H304
Aquatic Acute 1 H400

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

DANGER

Hazard statements (GHS-US) :

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
H400 - VERY TOXIC TO AQUATIC LIFE
H410 - VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS

Precautionary statements (GHS-US) :

P210 - Keep away from Heat, Open flames, Sparks, Hot surfaces. - No smoking
P233 - Keep container tightly closed
P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing vapors
P264 - Wash hands, forearms and face thoroughly after handling
P271 - Use and store only outdoors or in a well-ventilated area
P273 - Avoid release to the environment

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- P280 - Wear face shield, protective clothing, protective gloves, eye protection
- P391 - Collect spillage
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed
- P235 - Keep cool
- P405 - Store locked up
- P501 - Dispose of contents/container in accordance with container Supplier/owner instructions

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%
n-Octane	(CAS No) 111-65-9	99.5 - 100

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.
- First-aid measures after skin contact : In case of contact, immediately flush affected areas with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing before reuse. Discard contaminated shoes.
- First-aid measures after eye contact : Immediately call a poison center or doctor/physician. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.
- First-aid measures after ingestion : Immediately call a poison center or doctor/physician. Do not induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : MAY CAUSE DROWSINESS OR DIZZINESS.
- Symptoms/injuries after skin contact : CAUSES SKIN IRRITATION.
- Symptoms/injuries after ingestion : MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Carbon dioxide, Dry chemical, Water spray or fog.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : HIGHLY FLAMMABLE LIQUID AND VAPOR.
- Explosion hazard : May form flammable/explosive vapor-air mixture.

5.3. Advice for firefighters

- Firefighting instructions : **DANGER: FLAMMABLE LIQUID AND VAPOR.** Evacuate all personnel from danger area. Use self-contained breathing apparatus. Immediately cool surrounding containers with water spray from maximum distance, taking care not to extinguish flames. Avoid spreading burning liquid with water. Remove ignition sources if safe to do so. If flames are accidentally extinguished, explosive reignition may occur. Reduce vapors with water spray or fog. Stop flow of liquid if safe to do so, while continuing cooling water spray. Remove all containers from area of fire if safe to do so. Allow fire to burn out. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1919 Subpart L - Fire Protection.

Other information : Vapor forms explosive mixtures with air and oxidizing agents. If leaking gas catches fire, do not extinguish flames. Flammable and toxic vapors may spread from leak and could explode if reignited by sparks or flames. Vapors are heavier than air and may collect in low spots. Explosive atmospheres may linger. Before entering area, especially confined areas, check with an appropriate device.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : **DANGER: High-pressure, oxidizing gas.** Evacuate personnel to a safe area. Appropriate self-contained breathing apparatus may be required. Approach suspected leak area with caution. Remove all sources of ignition. Vapor can spread from spill. Contact with flammable materials may cause fire or explosion. Ventilate area or move container to a well-ventilated area. Before entering the area, especially a confined area, check the atmosphere with an appropriate device.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

Protective equipment : Avoid breathing gas, vapors.

6.2. Environmental precautions

Avoid release to the environment. Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

6.3. Methods and material for containment and cleaning up

For containment : On land, sweep or shovel into suitable containers.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.

Precautions for safe handling : May irritate skin, eyes, and respiratory tract. Use only with adequate ventilation or respiratory protection. Do not get liquid or vapor in eyes, on skin, or on clothing. Have safety showers and eyewash fountains immediately available. May form explosive mixtures with air. Keep away from heat, sparks, and open flame. Use only spark-proof tools and explosion-proof equipment. Protect containers from damage. Use a suitable hand truck to move containers; do not drag, roll, slide, or drop. For other precautions in using this product, see section 16

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed

Store only where temperature will not exceed 125°F (52°C). Post "No Smoking/No Open Flames" signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g. NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16.

Conditions to avoid : Sources of ignition. Heat sources.

7.3. Specific end use(s)

No additional information available

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Octane (111-65-9)		
ACGIH	ACGIH TLV-TWA (ppm)	300 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	2350 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
USA IDLH	US IDLH (ppm)	1000 ppm (10% LEL)
n-Octane (111-65-9)		
ACGIH	ACGIH TLV-TWA (ppm)	300 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	2350 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm

8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Wear protective gloves.
Eye protection	: Chemical goggles or safety glasses.
Respiratory protection	: Wear respiratory protection.
Other information	: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Colorless liquid.
Molecular mass	: 114.22 g/mol
Color	: Colorless
Odor	: gasoline-like
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: 1.4
Melting point	: -56.7 °C
Freezing point	: No data available
Boiling point	: 125.7 °C
Flash point	: 13 °C
Critical temperature	: 295.6 °C
Auto-ignition temperature	: 206 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: 1 - 6.5 vol %
Vapor pressure	: 10.45 mm Hg (at 20 °C)
Relative vapor density at 20 °C	: No data available
Relative density	: 0.7
Relative density of saturated gas/air mixture	: 3.86
Density	: 0.7036 g/cm ³ (at 20 °C)
Solubility	: Water:
Log Pow	: 5.18
Log Kow	: No data available
Viscosity, kinematic	: 0.6372 cSt
Viscosity, dynamic	: No data available
Explosive properties	: No data available

Oxidizing properties : No data available

Explosion limits : 0.91 - 5.8 vol %

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

HIGHLY FLAMMABLE LIQUID AND VAPOR. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Extremely high or low temperatures. Open flame.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Octane (111-65-9)	
LC50 inhalation rat (ppm)	50513 ppm/1h
ATE US (gases)	25256.500 ppmV/4h
n-Octane (111-65-9)	
LC50 inhalation rat (ppm)	50513 ppm/1h
ATE US (gases)	25256.500 ppmV/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.

Symptoms/injuries after inhalation : MAY CAUSE DROWSINESS OR DIZZINESS.

Symptoms/injuries after skin contact : CAUSES SKIN IRRITATION.

Symptoms/injuries after ingestion : MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

Octane (111-65-9)	
EC50 Daphnia 1	0.38 mg/l (Exposure time: 48 h - Species: water flea)

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n-Octane (111-65-9)	
EC50 Daphnia 1	0.38 mg/l (Exposure time: 48 h - Species: water flea)

12.2. Persistence and degradability

Octane (111-65-9)	
Persistence and degradability	Not established.
n-Octane (111-65-9)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Octane (111-65-9)	
Log Pow	5.18
Bioaccumulative potential	Not established.
n-Octane (111-65-9)	
Log Pow	5.18
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

Additional information : Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN1262 Octanes, 3, II

UN-No.(DOT) : UN1262

Proper Shipping Name (DOT) : Octanes

Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Hazard labels (DOT) : 3 - Flammable liquid



Packing group (DOT) : II - Medium Danger

DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling

Additional information

Other information : No supplementary information available.

Transport by sea

UN-No. (IMDG)	: 1262
Proper Shipping Name (IMDG)	: OCTANES
Class (IMDG)	: 3 - Flammable liquids
Packing group (IMDG)	: II - substances presenting medium danger

Air transport

UN-No. (IATA)	: 1262
Proper Shipping Name (IATA)	: Octanes
Class (IATA)	: 3 - Flammable Liquids
Packing group (IATA)	: II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Octane (111-65-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Fire hazard
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All components of this product are listed on the Toxic Substances Control Act (TSCA) inventory.

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA

Octane (111-65-9)

Listed on the Canadian DSL (Domestic Substances List)

n-Octane (111-65-9)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Octane (111-65-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. National regulations

Octane (111-65-9)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)

15.3. US State regulations

Octane(111-65-9)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

n-Octane (111-65-9)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Non-significant risk level (NSRL)
No	No	No	No	

n-Octane (111-65-9)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Other information

: When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product

Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair, Inc, it is the user's obligation to determine the conditions of safe use of the product

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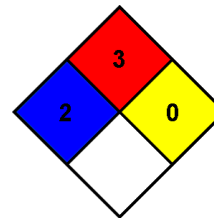
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- NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
- NFPA fire hazard : 3 - Liquids and solids that can be ignited under almost all ambient conditions.
- NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

- Health : 2 Moderate Hazard - Temporary or minor injury may occur
- Flammability : 3 Serious Hazard
- Physical : 1 Slight Hazard

SDS US (GHS HazCom 2012) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.