Section 1 - Product and Company Information

Product Name: Octane, reagent grade, 98%
Product Number: 412236
Brand: Aldrich Chemical
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAIN'T LOUIS, MO 63103 US
Technical Phone: 800-335-8802
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
<th>EC No</th>
<th>Annex I Index Number</th>
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</thead>
<tbody>
<tr>
<td>N-OCTANE</td>
<td>111-65-9</td>
<td>No</td>
<td>203-892-1</td>
<td>607-000-00-8</td>
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</tbody>
</table>

Formula: C8H18
Synonyms: n-Octane, Octane (ACGIH,OSHA), Octan (Polish), Octanen (Dutch), Ottari (Italian)

Section 3 - Hazards Identification

Emergency Overview
Flammable (USA) Highly Flammable (EU), Irritant.
Highly flammable, irritating to eyes, respiratory system and skin.
Target organ(s): Central nervous system.

HMIS Rating
Health: 2* Flammability: 3 Reactivity: 0

NFPA Rating
Health: 2 Flammability: 3 Reactivity: 0

*additional chronic hazards present.
For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure
In case of contact, immediately wash skin with soap and copious amounts of water.

Section 5 - Fire Fighting Measures

Flammable Hazards:
Yes

Explosion Hazards
Forms explosive mixtures in air.
Vapor may travel considerable distances to source of ignition and flash back.
Container explosion may occur under fire conditions.

Flash Point: 55.4 °F 13 °C

Explosion Limits:
Lower: 0.96 % Upper: 6.5 %

Autoignition Temp: 220 °C
Flammability: Yes

Extinguishing Media
Suitable
For small (incident) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray, solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Firefighting
Protective Equipment
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)
Flammable liquid. Emits toxic fumes under fire conditions.

Specific Method(s) of Fire Fighting
Use water spray to cool fire-exposed containers.

Section 6 - Accidental Release Measures

Procedural to be Followed in Case of Leak or Spill
Evacuate area. Shut off all sources of ignition.

Procedure(s) of Personal Protection(s)
Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up
Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling
User Exposure
Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.
Storage
Suitable
Keep container closed. Keep away from heat, sparks, and open flame. Handle and store under nitrogen.

Special Requirements
Hygroscopic.

Section 8 - Exposure Controls / PPE

Engineering Controls
Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

Personal Protective Equipment
Respiratory
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is not used, use a full-face supplied-air respirator.

Hand
Compatible with chemical-resistant gloves.

Eye
Chemical safety goggles.

General Hygiene Measures
Wash thoroughly after handling. Wash contaminated clothing before reuse.

Exposure Limits
<table>
<thead>
<tr>
<th>Country</th>
<th>Type</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Poland</td>
<td>NIOSH</td>
<td>1000 mg/m³</td>
</tr>
<tr>
<td>Poland</td>
<td>NIOSH</td>
<td>1800 mg/m³</td>
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</table>

Exposure Limits, RTECS
<table>
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<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>USA</td>
<td>ACGIH</td>
<td>TWA</td>
<td>300 PPM</td>
</tr>
<tr>
<td>USA</td>
<td>ACGIH</td>
<td>TWA</td>
<td>400 PPM (1900 MDL)</td>
</tr>
<tr>
<td>USA</td>
<td>OSHA</td>
<td>PEL</td>
<td>8H-TWA 500 PPM (2330 MDL)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>OEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>NIOSH</td>
<td>TWACeiling concentration</td>
<td>75 PPM/385 PPM/15M</td>
</tr>
</tbody>
</table>

Section 9 - Physical/Chemical Properties

Appearance
Physical State: Liquid
Color: Colorless

Molecular Weight: 114.23 AMU

pH: N/A

Boiling Point: 125 - 126 °C

Freezing Point: N/A

Vapor Pressure: 11 mmHg at 20 °C

Vapor Density: 3.9 g/l

Saturated Vapor Conc.: N/A

SG/Density: 0.703 g/cm³

Section 10 - Stability and Reactivity

Stability
Stable

Conditions to Avoid
Moisture.

Materials to Avoid
Strong acids, strong oxidizing agents.

Hazardous Decomposition Products
Carbon monoxide, Carbon dioxide.

Hazardous Polymerization
Not applicable.

Section 11 - Toxicological Information

Route of Exposure
Skin Contact
Causes skin irritation.

Skin Absorption
May be harmful if absorbed through the skin.

Eye Contact
May cause eye irritation.

Inhalation
May be harmful if inhaled. Material may be irritating to mucus membranes and upper respiratory tract. Ingestion
May be harmful if swallowed.

Target Organ(s) or System(s)
Central nervous system.

Signs and Symptoms of Exposure
Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Can cause CNS depression. Narcotic effect.

RTECS Number: R08400000

Aldrich Chemical - 412236
Page 3
Sigma-Aldrich Corporation
www.sigma-aldrich.com
Toxicity Data
Inhalation - Rat: 118,000 mg/m3 (LC50)

Section 12 - Ecological Information
No data available.

Section 13 - Disposal Considerations
Appropriate Method of Disposal of Substance or Preparation
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information
DOT
Proper Shipping Name: Octanes
UN#: 1262
Class: 3
Packing Group: Packing Group II
Hazard Label: Flammable liquid
PI: Not PIH

IATA
Proper Shipping Name: Octanes
IATA UN Number: 1262
Hazard Class: 3
Packing Group: II

Section 15 - Regulatory Information
EU Directives Classification
Symbol of Danger: F Xn N
Indication of Danger: Highly Flammable, Harmful, Dangerous for the environment.
Risk Statements: R: 11 36 50/53 65 67
Highly flammable. Irritating to skin. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness.
Safety Statements: S: 4 9 16 29 33 60 61 62
Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. Do not empty into drains. Take precautionary measures against static discharges. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets. If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

US Classification and Label Text
Risk Statements: Highly flammable, irritating to eyes, respiratory system and skin.
Safety Statements: Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take precautionary measures against static discharges. Wear suitable protective clothing. If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.
US Statements: Target organ(s): Central nervous system.

United States Regulatory Information
SARA Listed: No

TSCA Inventory Item: Yes

Canada Regulatory Information
WHMIS Classification
This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DGL: Yes
MSL: No

Section 15 - Other Information
Disclaimer
For R&D use only. Not for drug, household or other uses.

Warranty
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2006 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.