1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Isooctane

Cat No.: O296-1; O296-4; O296RS-28; O296RS-115; O296SK-1; O296SK-4; O296SS-28; O296SS-50; O296SS-115; O296SS-200; O297-4; O299-1; O299-4; O299FB-50; O299FB-200; O299RS-115; O299SS-28; O299SS-50; O299SS-115; O299SS-200; O300-1; O300-4; O301-1; O301-4

Synonyms: 2,2,4-Trimethylpentane, Isobutyltrimethylmethane (HPLC/Pesticide/Certified ACS/Spectranalyzed/Optima)

Recommended Use: Laboratory chemicals

Company: Fisher Scientific
Address: One Reagent Lane, Fair Lawn, NJ 07410
Phone: (201) 796-7100

Emergency Telephone Number: CHEMTREC®, Inside the USA: 800-424-9300, CHEMTREC®, Outside the USA: 703-527-3887

2. HAZARDS IDENTIFICATION

DANGER!

Target Organs: Kidney, Central nervous system (CNS), Eyes, Skin, Respiratory system

Physical State: Liquid

Appearance: Colorless

Odor: Petroleum distillates

Emergency Overview: Flammable liquid and vapor. Causes eye, skin, and respiratory tract irritation. Vapors may cause drowsiness and dizziness. Aspiration hazard if swallowed - can enter lungs and cause damage. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Acute Effects

Eyes: Irritating to eyes.
Skin: Irritating to skin. May be harmful in contact with skin.
Inhalation: Irritating to respiratory system. May be harmful if inhaled. Inhalation may cause central nervous system effects.
Ingestion
May be harmful if swallowed. Aspiration hazard. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects
Mutagenic effects have occurred in experimental animals. May cause adverse kidney effects. See Section 11 for additional Toxicological information.

Aggravated Medical Conditions
No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isooctane</td>
<td>540-84-1</td>
<td>99</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

**Inhalation**
Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention.

**Ingestion**
Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Notes to Physician**
Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Flash Point**
-12°C / 10.4°F

**Method**
No information available.

**Autoignition Temperature**
417°C / 782.6°F

**Explosion Limits**
- Upper 6.0 vol %
- Lower 1.1 vol %

**Suitable Extinguishing Media**
CO₂, dry chemical, dry sand, alcohol-resistant foam. Use water spray to cool unopened containers.

**Unsuitable Extinguishing Media**
Water may be ineffective. Do not use a solid water stream as it may scatter and spread fire.

**Hazardous Combustion Products**
No information available.

**Sensitivity to mechanical impact**
No information available.

**Sensitivity to static discharge**
No information available.

**Specific Hazards Arising from the Chemical**
Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing.

Environmental Precautions
Should not be released into the environment.

Methods for Containment and Clean Up
Remove all sources of ignition. Soak up with inert absorbent material. Take precautionary measures against static discharges. Keep in suitable and closed containers for disposal.

7. HANDLING AND STORAGE

Handling
Use only under a chemical fume hood. Use explosion-proof equipment. Wear personal protective equipment. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges.

Storage
Keep away from open flames, hot surfaces and sources of ignition. Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures
Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isooctane</td>
<td>TWA: 300 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>odor</td>
<td>Petroleum distillates</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
</tbody>
</table>
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>51 mbar @ 20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.94 (Air = 1.0)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.51 mPa s at 22 °C</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>98 - 99°C / 208.4 - 210.2°F @ 760 mmHg</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-107°C / -160.6°F</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flash Point</td>
<td>-12°C / 10.4°F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.690</td>
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<tr>
<td>Solubility</td>
<td>Insoluble in water</td>
</tr>
<tr>
<td>log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>114.23</td>
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<tr>
<td>Molecular Formula</td>
<td>C8 H18</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Conditions to Avoid
Incompatible products. Heat, flames and sparks.

Incompatible Materials
Strong oxidizing agents, Strong acids, Strong bases

Hazardous Decomposition Products
Carbon monoxide (CO), Carbon dioxide (CO2)

Hazardous Polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
None under normal processing.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

<table>
<thead>
<tr>
<th>Component Information</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isooctane</td>
<td>2500 mg/kg (Rat)</td>
<td>Not listed</td>
<td>34.7 mg/L (Rat) 4 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>47.4 mg/L (Rat) 1 h</td>
</tr>
</tbody>
</table>

Irritation
Irritating to eyes, respiratory system and skin

Toxicologically Synergistic Products
No information available.

Chronic Toxicity

Carcinogenicity
There are no known carcinogenic chemicals in this product
Sensitization
No information available.

Mutagenic Effects
Mutagenic effects have occurred in experimental animals.

Reproductive Effects
No information available.

Developmental Effects
No information available.

Teratogenicity
No information available.

Other Adverse Effects
The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

Endocrine Disruptor Information
No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available

Mobility
No information available

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

14. TRANSPORT INFORMATION

DOT

<table>
<thead>
<tr>
<th>UN-No</th>
<th>UN1262</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>OCTANES</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>3</td>
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<tr>
<td>Packing Group</td>
<td>II</td>
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</table>

TDG

<table>
<thead>
<tr>
<th>UN-No</th>
<th>UN1262</th>
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<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>OCTANES</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>3</td>
</tr>
<tr>
<td>Packing Group</td>
<td>II</td>
</tr>
</tbody>
</table>

IATA
14. TRANSPORT INFORMATION

UN-No: UN1262
Proper Shipping Name: OCTANES
Hazard Class: 3
Packing Group: II

IMDG/IMO

UN-No: UN1262
Proper Shipping Name: OCTANES
Hazard Class: 3
Packing Group: II

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
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</thead>
<tbody>
<tr>
<td>Isooctane</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>208-755-1</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-34634</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable
SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>
Clean Water Act  
Not applicable

Clean Air Act

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depletors</th>
<th>Class 2 Ozone Depletors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isooctane</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OSHA  
Not applicable

CERCLA  
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isooctane</td>
<td>1000 lb</td>
<td>-</td>
</tr>
</tbody>
</table>

California Proposition 65  
This product does not contain any Proposition 65 chemicals.

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isooctane</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation  
Reportable Quantity (RQ): Y  
DOT Marine Pollutant: N  
DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security  
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade  
Serious risk, Grade 3

Canada  
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class  
B2 Flammable liquid
16. OTHER INFORMATION

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Tel: (412) 490-8929

Creation Date
22-Jun-2009

Print Date
23-Sep-2009

Revision Summary
“***”, and red text indicates revision

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS