1. PRODUCT AND COMPANY IDENTIFICATION

Product Name 1-Pentene
Cat No. AC268660000; AC268660010; AC268660050; AC268660250; AC268661000; AC268662500; AC268665000
Synonyms Propylethylene; alfa-α-Amylene
Recommended Use Laboratory chemicals

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100
Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information in the US, call: 800-ACROS-01
For information in Europe, call: +32 14 57 52 11
Emergency Number, Europe: +32 14 57 52 99
Emergency Number, US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300
CHEMTREC Phone Number, Europe: 703-527-3887

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview
Extremely flammable liquid and vapor. Vapors may cause flash fire or explosion. Aspiration hazard if swallowed - can enter lungs and cause damage. May cause skin, eye, and respiratory tract irritation.

Appearance Colorless
Physical State Liquid
odor No information available

Target Organs None known.

Potential Health Effects
Acute Effects
Principle Routes of Exposure

- **Eyes**: May cause irritation.
- **Skin**: May be harmful in contact with skin. May cause irritation.
- **Inhalation**: May be harmful if inhaled. May cause irritation of respiratory tract.
- **Ingestion**: Aspiration hazard. May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects
None known.

Aggravated Medical Conditions
No information available.

See Section 11 for additional Toxicological information.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Pentene</td>
<td>109-67-1</td>
<td>&gt;95</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. Get medical attention immediately if symptoms occur.
- **Inhalation**: Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
- **Ingestion**: Do not induce vomiting. Call a physician or Poison Control Center immediately.
- **Notes to Physician**: Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

- **Flash Point**: -28°C / -18.4°F
- **Method**: No information available.
- **Autoignition Temperature**: 273°C / 523.4°F
- **Explosion Limits**
  - **Upper**: No data available
  - **Lower**: No data available
- **Suitable Extinguishing Media**: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.
- **Unsuitable Extinguishing Media**: No information available.
- **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
Extremely flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

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>4</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.

Environmental Precautions
Should not be released into the environment.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. HANDLING AND STORAGE

Handling
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges.

Storage
Flammables area. Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place. Keep refrigerated.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

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

Physical State
Liquid
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>700 mbar @ 20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available.</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>30°C / 86°F</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-165°C / -265°F</td>
</tr>
<tr>
<td>Decomposition temperature °C</td>
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<tr>
<td>Flash Point</td>
<td>-28°C / -18.4°F</td>
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<tr>
<td>Evaporation Rate</td>
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<tr>
<td>Specific Gravity</td>
<td>0.640</td>
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<tr>
<td>Solubility</td>
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<tr>
<td>log Pow</td>
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<tr>
<td>Molecular Weight</td>
<td>70.13</td>
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<tr>
<td>Molecular Formula</td>
<td>C5 H10</td>
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</table>

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Conditions to Avoid

Incompatible Materials
Strong oxidizing agents, Strong acids

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

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
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<tbody>
<tr>
<td>1-Pentene</td>
<td>Not listed</td>
<td>Not listed</td>
<td>175000 mg/m³ (Rat) 4 h</td>
</tr>
</tbody>
</table>

Irritation
No information available.

Toxicologically Synergistic Products
No information available.

Chronic Toxicity

Carcinogenicity
There are no known carcinogenic chemicals in this product.
Sensitization  No information available.
Mutagenic Effects  No information available.
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
Do not empty into drains.

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
UN-No  UN1108
Proper Shipping Name  1-PENTENE
Hazard Class  3
Packing Group  I

TDG
UN-No  UN1108
Proper Shipping Name  1-PENTENE
Hazard Class  3
Packing Group  I
14. TRANSPORT INFORMATION

IATA

<table>
<thead>
<tr>
<th>UN-No</th>
<th>1108</th>
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<tr>
<td>Proper Shipping Name</td>
<td>1-PENTENE</td>
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<td>Hazard Class</td>
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<tr>
<td>Packing Group</td>
<td>I</td>
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</table>

IMDG/IMO

<table>
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<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>1-PENTENE</td>
</tr>
<tr>
<td>Hazard Class</td>
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</tr>
<tr>
<td>Packing Group</td>
<td>I</td>
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</table>

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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<tbody>
<tr>
<td>1-Pentene</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>203-694-5</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-28027</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>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Sudden Release of Pressure Hazard  No
Reactive Hazard  No

Clean Water Act
Not applicable

Clean Air Act
Not applicable

OSHA
Not applicable

CERCLA
Not Applicable

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>
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<tbody>
<tr>
<td>1-Pentene</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

U.S. Department of Homeland Security
This product contains the following DHS chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>DHS Chemical Facility Anti-Terrorism Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Pentene</td>
<td>7500 lb STQ</td>
</tr>
</tbody>
</table>

Other International Regulations

Mexico - Grade  Severe risk, Grade 4

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
20-Apr-2010

Print Date
20-Apr-2010

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