Section 1 - Product and Company Information

Product Name                      2,2,4-TRIMETHYLPENTANE, 99.7+%, HPLC GRADE
Product Number                    270350
Brand                              ALDRICH
Company                            Sigma-Aldrich
Street Address                     3050 Spruce Street
City, State, Zip, Country          SAINT LOUIS MO 63103 US
Technical Phone:                   314 771 5765
Emergency Phone:                   414 273 3850 Ext. 5996
Fax:                               800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name                      2,2,4-TRIMETHYLPENTANE
CAS #:                              540-84-1
SARA #:                              No

Formula                           C8H18
Synonyms                          Isobutyltrimethylmethane * Isooctane *
                                      2,2,4-Trimethylpentane * 2,4,4-Trimethylpentane
RTECS Number:                     SA3320000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Flammable (USA) Highly Flammable (EU). Harmful. Dangerous for the environment.
Highly flammable. Irritating to eyes, respiratory system and 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.
Target organ(s): Liver. Kidneys.

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.

EYE EXPOSURE
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS
Flammable Hazards: Yes

EXPLOSION HAZARDS
Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

FLASH POINT
10.4 °F  -12 °C  Method: closed cup

EXPLOSION LIMITS
Lower: 1 %  Upper: 6 %

AUTOIGNITION TEMP
396 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

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.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(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.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling. Wash contaminated clothing before reuse.

Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Physical State: Liquid</td>
<td></td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>114.23 AMU</td>
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</tr>
<tr>
<td>pH</td>
<td>N/A</td>
<td></td>
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<tr>
<td>BP/BP Range</td>
<td>98 – 99 °C</td>
<td>760 mmHg</td>
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<tr>
<td>MP/MP Range</td>
<td>-107 °C</td>
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<tr>
<td>Freezing Point</td>
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<tr>
<td>Vapor Pressure</td>
<td>41 mmHg</td>
<td>21 °C</td>
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<tr>
<td>Vapor Density</td>
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<td>Saturated Vapor Conc.</td>
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<td>Bulk Density</td>
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<tr>
<td>Odor Threshold</td>
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<tr>
<td>Volatile%</td>
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<tr>
<td>VOC Content</td>
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<tr>
<td>Water Content</td>
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<tr>
<td>Solvent Content</td>
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<tr>
<td>Evaporation Rate</td>
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<tr>
<td>Viscosity</td>
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<tr>
<td>Surface Tension</td>
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<tr>
<td>Partition Coefficient</td>
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<tr>
<td>Decomposition Temp.</td>
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<td>Flash Point</td>
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</tr>
<tr>
<td>Explosion Limits</td>
<td>Lower: 1 %</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper: 6 %</td>
<td></td>
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<tr>
<td>Flammability</td>
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<tr>
<td>Autoignition Temp</td>
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<td>Refractive Index</td>
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<td>Optical Rotation</td>
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<td></td>
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<td>Miscellaneous Data</td>
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<tr>
<td>Solubility</td>
<td>Solubility in Water: Insoluble.</td>
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<td></td>
<td>Other Solvents: BENZENE, TOLUENE, XYLENE CHLOROFORM, ETHER CARBON</td>
<td></td>
</tr>
</tbody>
</table>

N/A = not available
Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazards Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes eye irritation.
Inhalation: May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)
Liver. Kidneys.

CHRONIC EXPOSURE - MUTAGEN

Species: Rat
Route: Oral
Dose: 500 MG/KG
Mutation test: Unscheduled DNA synthesis

Species: Mouse
Route: Oral
Dose: 500 MG/KG
Mutation test: Unscheduled DNA synthesis

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
PIH: 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
R: 11 38 50/53 65 67
Risk Statements: 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.
S: 9 16 29 33 60 61 62
Safety Statements: 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. 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: 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. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). 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.

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.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER
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
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