SECTION 1. IDENTIFICATION

Product Identifier  2,2,4-Trimethylpentane (Iso-Octane)
Other Means of Identification  2,2,4-TMP, Iso-Octane
Product Code(s)  TR8010, TR8020
Product Family  Organic solution
Recommended Use  Laboratory and industrial use.
Restrictions on Use  None known.
Supplier Identifier  Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
Emergency Phone No.  CANUTEC CANADA, 613-996-6666, 24 Hours
SDS No.  0353

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada’s Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Classification
Flammable liquid - Category 2; Skin irritation - Category 2; Eye irritation - Category 2A; Specific target organ toxicity (single exposure) - Category 3; Specific target organ toxicity (repeated exposure) - Category 2; Aspiration hazard - Category 1

Label Elements

Signal Word:
Danger

Hazard Statement(s):
Highly flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Causes damage to organs through prolonged or repeated exposure.

Precautionary Statement(s):
Wash hands and skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not breathe dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well-ventilated area.
Keep away from heat, sparks, open flames, and hot surfaces. – No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical, ventilating, and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.

Response:
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN: Wash with plenty of water.
If skin irritation occurs: Get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Call a POISON CENTRE or doctor.
In case of fire: Use appropriate foam, carbon dioxide, dry chemical powder to extinguish.

Storage:
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Other Hazards
May be a health and fire hazard in a confined space.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS No.</th>
<th>%</th>
<th>Other Identifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,4-Trimethylpentane</td>
<td>540-84-1</td>
<td>&gt; 99</td>
<td>2,2,4-TMP; Iso-Octane</td>
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</tbody>
</table>

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation
Take precautions to prevent a fire (e.g. remove sources of ignition). Remove source of exposure or move to fresh air. If breathing has stopped, trained personnel should begin rescue breathing. Immediately call a Poison Centre or doctor.

Skin Contact
Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes. If skin irritation occurs, get medical advice or attention.

Eye Contact
Quickly and gently blot or brush chemical off the face. Rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. If eye irritation persists, get medical advice or attention.

Ingestion
Do not induce vomiting. Rinse mouth with water. If vomiting occurs, have person lie on side in the recovery position. Rinse mouth with water again. Immediately call a Poison Centre or doctor.

First-aid Comments
All first aid procedures should be periodically reviewed by a doctor familiar with the material and its condition of use in the workplace. If exposed or concerned, get medical advice or attention.

Most Important Symptoms and Effects, Acute and Delayed
If inhaled: can irritate the nose and throat. Can harm the nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion.
Immediate Medical Attention and Special Treatment

Special Instructions
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Carbon dioxide, dry chemical powder or appropriate foam.

Unsuitable Extinguishing Media
Water is not effective for extinguishing a fire. It may not cool product below its flash point.

Specific Hazards Arising from the Product
Can accumulate static charge by flow, splashing or agitation. Can be ignited by static discharge. Liquid can float on water and may travel to distant locations and/or spread fire. May accumulate in hazardous amounts in low-lying areas especially inside confined spaces, resulting in a fire and/or health hazard.
In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide.

Special Protective Equipment and Precautions for Fire-fighters
Evacuate area. Fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours or gases. Stop leak before attempting to put out the fire. Product could form an explosive mixture and reignite. If the leak cannot be stopped, let the fire burn itself out. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles.
Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures
Emergency responders: use the personal protective equipment recommended in Section 8 of this safety data sheet.
Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Eliminate all ignition sources if safe to do so. Remove or isolate incompatible materials as well as other hazardous materials.

Environmental Precautions
Do not allow into any sewer, on the ground or into any waterway.

Methods and Materials for Containment and Cleaning Up
Stop or reduce leak if safe to do so. Contain spill with earth, sand, or absorbent material which does not react with spilled material.
Small spills or leaks: contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal.
Large spills or leaks: contact emergency services and manufacturer/supplier for advice.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling
Wear personal protective equipment to avoid direct contact with this chemical. Do not breathe in this product. Do not get in eyes, on skin or on clothing. Prevent accidental contact with incompatible chemicals. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces and static discharge. Post “No Smoking” signs. Electrically bond and ground equipment. Ground clips must contact bare metal. Use non-sparking tools. Keep containers tightly closed when not in use or empty.

Conditions for Safe Storage
Store in an area that is: cool, dry, well-ventilated, out of direct sunlight and away from heat and ignition sources, separate from incompatible materials (see Section 10: Stability and Reactivity), clear of combustible and flammable materials (e.g. old rags, cardboard). Keep amount in storage to a minimum. Store in a closed container. Empty containers may contain hazardous residue. Store separately. Keep closed. Follow all precautions given on this safety data sheet. Comply with all applicable health and safety regulations, fire and building codes.

Product Identifier: 2,2,4-Trimethylpentane (Iso-Octane)
Date of Preparation: February 04, 2016
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV®</th>
<th>OSHA PEL</th>
<th>AIHA WEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA</td>
<td>STEL</td>
<td>TWA</td>
</tr>
<tr>
<td>2,2,4-Trimethylpentane</td>
<td>300 ppm</td>
<td></td>
<td>300 ppm</td>
</tr>
</tbody>
</table>

Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored. Exhaust directly to the outside, taking any necessary precautions for environmental protection.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.
Suitable materials are: nitrile rubber, Viton®, Viton®/butyl rubber, Barrier® (PE/PA/PE).
The following materials should NOT be used: butyl rubber, natural rubber, polyvinyl chloride.

Respiratory Protection

Wear a NIOSH approved air-purifying respirator with an appropriate cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance: Colourless liquid.
Odour: Gasoline-like
Odour Threshold: Not available
pH: Not applicable
Melting Point/Freezing Point: -107 °C (-161 °F) (melting); -107 °C (-161 °F) (freezing)
Initial Boiling Point/Range: 99 °C (210 °F)
Flash Point: -12 °C (10 °F)
Evaporation Rate: Not available
Flammability (solid, gas): Not available
Upper/Lower Flammability or Explosive Limit: 6.0% (upper); 1.1% (lower)
Vapour Pressure: 41 mm Hg
Vapour Density (air = 1): 3.94
Relative Density (water = 1): 0.692 at 20 °C
Solubility: Insoluble in water; Highly soluble in common organic solvents.
Partition Coefficient, n-Octanol/Water (Log Kow): Not available
Auto-ignition Temperature: 418 °C (784 °F)
Decomposition Temperature: Not available
Viscosity: Not available (kinematic); Not available (dynamic)
Other Information

Physical State: Liquid
Other Physical Property 1: Vapour Pressure: 41 mmHg @ 21 deg C

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Product Identifier: 2,2,4-Trimethylpentane (Iso-Octane)
Date of Preparation: February 04, 2016
Not reactive under normal conditions of use.

**Chemical Stability**
Normally stable.

**Possibility of Hazardous Reactions**
None known.

**Conditions to Avoid**
Open flames, sparks, static discharge, heat and other ignition sources.

**Incompatible Materials**
Strong oxidizing agents (e.g. perchloric acid).

**Hazardous Decomposition Products**
Very toxic carbon monoxide, carbon dioxide.

### SECTION 11. TOXICOLOGICAL INFORMATION

**Likely Routes of Exposure**
Inhalation; skin contact; eye contact; ingestion.

**Acute Toxicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LC50</th>
<th>LD50 (oral)</th>
<th>LD50 (dermal)</th>
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<tbody>
<tr>
<td>2,2,4-Trimethylpentane</td>
<td>47.4 mg/L (rat) (1-hour exposure)</td>
<td>&gt; 2500 mg/kg (rat)</td>
<td>Not available</td>
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</tbody>
</table>

**Skin Corrosion/Irritation**
May cause mild irritation based on information for closely related chemicals.

**Serious Eye Damage/Irritation**
The vapour also irritates the eyes.

**STOT (Specific Target Organ Toxicity) - Single Exposure**

**Inhalation**
May cause nose and throat irritation, depression of the central nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion. At high concentrations a severe exposure can cause unconsciousness.

**Ingestion**
May cause a laxative effect. Symptoms may include nausea, vomiting, stomach cramps and diarrhea.

**Aspiration Hazard**
May be drawn into the lungs (aspirated) if swallowed or vomited.

**STOT (Specific Target Organ Toxicity) - Repeated Exposure**
Dermatitis. Symptoms may include dry, red, cracked skin (dermatitis).

**Respiratory and/or Skin Sensitization**
No information was located.

**Carcinogenicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>IARC</th>
<th>ACGIH®</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,4-Trimethylpentane</td>
<td>Not evaluated</td>
<td>Not designated</td>
<td>Not Listed</td>
<td></td>
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</table>
Reproductive Toxicity

Development of Offspring
Conclusions cannot be drawn from the limited studies available.

Sexual Function and Fertility
Conclusions cannot be drawn from the limited studies available.

Effects on or via Lactation
No information was located.

Germ Cell Mutagenicity
Conclusions cannot be drawn from the limited studies available.

Interactive Effects
No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents and container in accordance with local, regional, national and international regulations.

SECTION 14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>Regulation</th>
<th>UN No.</th>
<th>Proper Shipping Name</th>
<th>Transport Hazard Class(es)</th>
<th>Packing Group</th>
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</thead>
<tbody>
<tr>
<td>Canadian TDG</td>
<td>UN1262</td>
<td>Octanes</td>
<td>3</td>
<td>II</td>
</tr>
<tr>
<td>US DOT</td>
<td>UN1262</td>
<td>Octanes</td>
<td>3</td>
<td>II</td>
</tr>
<tr>
<td>IATA (Air)</td>
<td>UN1262</td>
<td>Octanes</td>
<td>3</td>
<td>II</td>
</tr>
</tbody>
</table>

Special Precautions: Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada
- Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)
  Listed on the DSL.

USA
- Toxic Substances Control Act (TSCA) Section 8(b)
  Listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

NFPA Rating
Health - 2  Flammability - 3  Instability - 0

SDS Prepared By
Alphachem Limited

Phone No.
(905)-821-2995

Date of Preparation
February 04, 2016

Date of Last Revision
March 24, 2016

References
CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).

Product Identifier: 2,2,4-Trimethylpentane (Iso-Octane)
Date of Preparation: February 04, 2016
Disclaimer

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