MATERIAL SAFETY DATA SHEET OF
4-METHYLICYCLOHEXANONE

SECTION 1. PRODUCT IDENTIFICATION

<table>
<thead>
<tr>
<th>MSDS Name:</th>
<th>4- Methylcyclohexanone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Formula:</td>
<td>C₇H₁₂O</td>
</tr>
<tr>
<td>Synonym:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B-34, Unit-III, M.I.D.C. Badlapur (E), Dist. Thane, 421 503.</td>
</tr>
</tbody>
</table>

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>589-92-4</td>
<td>4- Methylcyclohexanone</td>
<td>-</td>
</tr>
</tbody>
</table>

SECTION 3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW
Appearance: colorless to slight yellow clear liquid. Flash Point: 40 deg C.
Warning! Flammable liquid and vapor. Harmful if swallowed, inhaled, or absorbed through the skin. May cause eye, skin, and respiratory tract irritation.
Target Organs: None known.

Potential Health Effects
Eye: May cause eye irritation.
Skin: May cause skin irritation. Harmful if absorbed through the skin.
Ingestion: Harmful if swallowed. May cause irritation of the digestive tract.
Inhalation: Harmful if inhaled. May cause respiratory tract irritation.
Chronic: No information found.

SECTION 4. FIRST AID

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Do not induce vomiting. Get medical aid immediately. Call a poison control center.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or
inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician: Treat symptomatically and supportively.

SECTION 5. FIRE AND EXPLOSION

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Containers may explode in the heat of a fire. Flammable liquid and vapor.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Flash Point: 40 deg C (104.00 deg F)

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 2; Instability: 0

SECTION 6. ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

SECTION 7. HANDLING AND STORAGE

Handling: Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood.

Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

SECTION 8. PERSONAL PROTECTION/EXPOSURE CONTROLS

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits
<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Methylcyclohexanone</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: 4-Methylcyclohexanone: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: 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: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: 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.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical State: Clear liquid

Appearance: colorless to slight yellow

Odor: None reported.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: 3.86

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 169 - 171 deg C @ 760 mmHg

Freezing/Melting Point: -41 deg C

Decomposition Temperature: Not available.

Solubility: Not available.

Specific Gravity/Density: 0.914

Molecular Formula: C7H12O

Molecular Weight: 112.17

**SECTION 10. REACTIVITY/STABILITY**

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, strong bases.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.
SECTION 11. TOXICOLOGICAL INFORMATION

RTECS#: 
CAS# 589-92-4: GW1750200 
LD50/LC50: 
CAS# 589-92-4: 
Oral, mouse: LD50 = 1600 mg/kg; 
Oral, rat: LD50 = 800 mg/kg; 

Carcinogenicity: 
CAS# 589-92-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found 
Teratogenicity: No information found 
Reproductive Effects: No information found 
Mutagenicity: No information found 
Neurotoxicity: No information found

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity: No data available. No information available. 
Environmental: No information available. 
Physical: No information available. 
Other: Do not empty into drains.

SECTION 13. DISPOSAL

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification. 
RCRA P-Series: None listed. 
RCRA U-Series: None listed.
SECTION 14. TRANSPORTATION

US DOT        CANADA TDG
Shipping Name:  METHYLCYCLOHEXANONE   METHYLCYCLOHEXANONE
Hazard Class:  3          3
UN Number:   UN2297           UN2297
Packing Group:  III           III

SECTION 15. REGULATORY INFORMATION

US FEDERAL

TSCA
   CAS# 589-92-4 is listed on the TSCA inventory.
Health & Safety Reporting List
   None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
   None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
   None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
   None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
   None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
   None of the chemicals in this product have a TPQ.
Section 313   No chemicals are reportable under Section 313.
Clean Air Act:
   This material does not contain any hazardous air pollutants.
   This material does not contain any Class 1 Ozone depletors.
   This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
   None of the chemicals in this product are listed as Hazardous Substances under the CWA.
   None of the chemicals in this product are listed as Priority Pollutants under the CWA.
   None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
   None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
   CAS# 589-92-4 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.
SECTION 16 - ADDITIONAL INFORMATION

This document is intended only as a guide to the appropriate precautionary handling of material by a person trained in chemical handling. The user is responsible for determining the precautions & dangers of this chemical for his or her particular application depending on usage. Adequate protective clothing, including eye / face guards, approved respirators must be used to avoid contact with the material or breathing chemical vapors / fumes. Exposure to this product may cause adverse health effects.

This chemical may interact with other substances. Since the potential uses are so varied, M/s. Omkar Speciality Chemicals limited. Ltd. cannot warn of all of the potential dangers of use or interaction with chemicals of materials. M/s Omkar Speciality Chemicals limited. warrants that, the chemical meets the specifications set forth on the test report.

M/s. Omkar Speciality Chemicals limited. Ltd. Disclaims any other warranties expressed or implied with regard to the product supplied hereunder its merchantability or its fitness for a particular purpose. The user should recognize that, this product can cause severe injury, especially if improperly handled or the known dangers of use are not heeded.

READ ALL PRECAUTIONARY INFORMATIONS