# Material Safety Data Sheet

## Section 1. Product and Company Identification

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Methyl-t-Butyl Ether, OmniSolv®, For Gas Chromatography, Residue Analysis, HPLC, Spectrophotometry</th>
<th>Product Code</th>
<th>MX0826</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>EMD Chemicals Inc.</td>
<td>Effective Date</td>
<td>3/1/2004</td>
</tr>
<tr>
<td></td>
<td>P.O. Box 70</td>
<td>Print Date</td>
<td>5/13/2004</td>
</tr>
<tr>
<td></td>
<td>480 Democrat Road</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gibbstown, NJ 08027</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### For More Information Call
856-423-6300 Technical Service
Monday-Friday: 8:00 AM - 5:00 PM

### In Case of Emergency Call
800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

## Section 2. Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHYL TERT-BUTYL ETHER</td>
<td>1634-04-4</td>
<td>100</td>
</tr>
</tbody>
</table>

## Section 3. Hazards Identification

### Physical State and Appearance
Liquid.

### Emergency Overview
DANGER!
EXTREMELY FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
POSSIBLE CANCER HAZARD.
MAY CAUSE CANCER BASED ON ANIMAL DATA.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
MAY FORM explosive peroxides.

### Routes of Entry
Inhalation. Ingestion.

### Potential Acute Health Effects

<table>
<thead>
<tr>
<th>Eyes</th>
<th>Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Hazardous in case of inhalation (lung irritant).</td>
</tr>
</tbody>
</table>
**Potential Chronic Health Effects**

**Ingestion** Ingestion can cause nausea and vomiting.

**Medical Conditions Aggravated by Overexposure:**

Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

**Section 4. First Aid Measures**

**Eye Contact**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Skin Contact**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Inhalation**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Section 5. Fire Fighting Measures**

**Flammability of the Product**

Product will burn.

**Auto-ignition Temperature**

Not available.

**Flash Points**

Closed cup: -10.1°C (13.8°F).

**Flammable Limits**

Not available.

**Products of Combustion**

These products are carbon oxides (CO, CO2).

**Fire Hazards in Presence of Various Substances**

Extremely flammable in presence of open flames, sparks and static discharge, of shocks, of heat, of oxidizing materials.

**Explosion Hazards in Presence of Various Substances**

Risks of explosion of the product in presence of static discharge:

Extremely flammable in presence of open flames, sparks and static discharge.

Extremely explosive in presence of open flames, sparks and static discharge.

Risks of explosion of the product in presence of mechanical impact:

Extremely flammable in presence of shocks.

Extremely explosive in presence of shocks.

**Fire Fighting Media and Instructions**

Flammable liquid, soluble or dispersed in water.

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

**Protective Clothing (Fire)**

Be sure to use an approved/certified respirator or equivalent.

Continued on Next Page
Special Remarks on Fire Hazards: Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards: May form explosive peroxides.

**Section 6. Accidental Release Measures**

**Small Spill and Leak**: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill and Leak**: Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

**Spill Kit Information**: The following EMD Chemicals Inc. SpillSolv® absorbent is recommended for this product: SX1330 Solvent Treatment Kit.

**Section 7. Handling and Storage**

**Handling**: Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Avoid breathing vapors or spray mists. Do not get in eyes, on skin, or on clothing. Do not ingest.

**Storage**: Keep container in a cool, well-ventilated area.

**Section 8. Exposure Controls/Personal Protection**

**Engineering Controls**: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection**

- **Eyes**: Splash goggles.
- **Body**: Lab coat.
- **Respiratory**: Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
- **Hands**: Gloves.
- **Feet**: Not applicable.

**Protective Clothing (Pictograms)**

**Personal Protection in Case of a Large Spill**: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Product Name**

- METHYL TERT-BUTYL ETHER

**Exposure Limits**

- ACGIH (United States, 1995).
- TWA: 144 mg/m³
- TWA: 40 ppm

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### Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor</td>
<td>Not available.</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless.</td>
</tr>
<tr>
<td>Physical State and Appearance</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>88.17 g/mole</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C5-H12-O</td>
</tr>
<tr>
<td>pH</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling/Condensation Point</td>
<td>52.9°C (127.2°F)</td>
</tr>
<tr>
<td>Melting/Freezing Point</td>
<td>-184.95°C (-300.9°F)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.758 (Water = 1)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>8.14 compared to(n-BUTYL ACETATE=1)</td>
</tr>
<tr>
<td>LogKow</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Partially soluble in water.</td>
</tr>
</tbody>
</table>

### Section 10. Stability and Reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability and Reactivity</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Not available.</td>
</tr>
<tr>
<td>Incompatibility with Various Substances</td>
<td>Extremely reactive or incompatible with oxidizing agents.</td>
</tr>
<tr>
<td>Rem/Incompatibility</td>
<td>Not available.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Not available.</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur.</td>
</tr>
</tbody>
</table>

### Section 11. Toxicological Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTECS Number: Methyl-t-Butyl Ether</td>
<td>KN5250000</td>
</tr>
<tr>
<td>Toxicity</td>
<td>Acute oral toxicity (LD_{50}): 4000 mg/kg [Rat].</td>
</tr>
<tr>
<td></td>
<td>Acute toxicity of the vapor (LC_{50}): 23576 ppm 4 hour(s) [Rat].</td>
</tr>
<tr>
<td>Chronic Effects on Humans</td>
<td>CARCINOGENIC EFFECTS: Classified A3 (Proven for animal,) by ACGIH.</td>
</tr>
<tr>
<td></td>
<td>Classified 3 by IARC</td>
</tr>
</tbody>
</table>
Acute Effects on Humans
Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Hazardous in case of inhalation (lung irritant).

Synergetic Products
(Toxicologically)
Not available.

Irritancy
Draize Test: Not available.

Sensitization
Not available.

Carcinogenic Effects
Classified A3 (Proven for animal.) by ACGIH. Classified 3 by IARC

Toxicity to Reproductive System
Tests on laboratory animals for reproductive effects are cited in Registry of Toxic Effects on Chemical Substances (RTECS).

Teratogenic Effects
Not available.

Mutagenic Effects
Not available.

Section 12. Ecological Information
Ecotoxicity
Not available.

BOD5 and COD
Not available.

Toxicity of the Products of Biodegradation
The product itself and its products of degradation are not toxic.

Section 13. Disposal Considerations
EPA Waste Number
D001

Treatment
Incineration, fuels blending or recycle. Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations.

Section 14. Transport Information
DOT Classification
Proper Shipping Name: METHYL TERT-BUTYL ETHER
Hazard Class: 3
UN number: UN2398
Packing Group: II
RQ: 1000 lbs. (453.6 kg)

TDG Classification
Not available.

IMO/IMDG Classification
Proper Shipping Name: METHYL TERT-BUTYL ETHER
Hazard Class: 3
UN number: UN2398
Packing Group: II
RQ: 1000

ICAO/IATA Classification
Not available.

Continued on Next Page
## Section 15. Regulatory Information

### U.S. Federal Regulations
- TSCA 4(a) final test rules: METHYL TERT-BUTYL ETHER
- TSCA 8(b) inventory: METHYL TERT-BUTYL ETHER
- TSCA 8(d) H and S data reporting: METHYL TERT-BUTYL ETHER: 1986
- SARA 302/304/311/312 extremely hazardous substances: No products were found.
- SARA 302/304 emergency planning and notification: No products were found.
- SARA 302/304/311/312 hazardous chemicals: METHYL TERT-BUTYL ETHER
- SARA 311/312 MSDS distribution - chemical inventory - hazard identification: METHYL TERT-BUTYL ETHER: Fire Hazard
- SARA 313 toxic chemical notification and release reporting: METHYL TERT-BUTYL ETHER
- Clean Water Act (CWA) 307: No products were found.
- Clean Water Act (CWA) 311: No products were found.
- Clean air act (CAA) 112 accidental release prevention: No products were found.
- Clean air act (CAA) 112 regulated flammable substances: No products were found.
- Clean air act (CAA) 112 regulated toxic substances: No products were found.

### WHMIS (Canada)
- CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
- Class D-2B: Material causing other toxic effects (TOXIC).

### CEPA DSL
- METHYL TERT-BUTYL ETHER

This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

### International Regulations
- **EINECS**
  - METHYL TERT-BUTYL ETHER 216-653-1
- **DSCL (EEC)**
  - R11- Highly flammable.
  - R37/38- Irritating to respiratory system and skin.
  - R40- Possible risks of irreversible effects.
  - R41- Risk of serious damage to eyes.

### International Lists
- Australia (NICNAS): METHYL TERT-BUTYL ETHER
- Japan (MITI): METHYL TERT-BUTYL ETHER
- Japan (MOL): METHYL TERT-BUTYL ETHER
- Korea (TCCL): METHYL TERT-BUTYL ETHER
- Philippines (RA6969): METHYL TERT-BUTYL ETHER
- China: No products were found.

### State Regulations
- Pennsylvania RTK: METHYL TERT-BUTYL ETHER: (environmental hazard, generic environmental hazard)
- Massachusetts RTK: METHYL TERT-BUTYL ETHER
- New Jersey: METHYL TERT-BUTYL ETHER
- California prop. 65: No products were found.

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*Continued on Next Page*
Section 16. Other Information

Notice to Reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.