1. PRODUCT AND COMPANY IDENTIFICATION:

   PRODUCT CODE       H0139
   PRODUCT NAME       BENZYL MERCAPTAN
   SUPPLIER           Shanghai M & U International Trade Co., Ltd.
                       Rm 1717, No 598 North NuJiang Road
                       200333 Shanghai, China
                       +86-21-32515501 32515502
                       sales@mu-intel.com

   FOR EMERGENCIES CALL CHEMTREC:  800-424-9300 (24-HOURS)

2. HAZARD IDENTIFICATION:

   Emergency Overview
   OSHA Hazards
   Combustible Liquid, Highly toxic by inhalation, Toxic by ingestion

   Other hazards which do not result in classification
   Stench

   GHS Classification
   Flammable liquids (Category 4)
   Acute toxicity, Oral (Category 4)
   Acute toxicity, Inhalation (Category 2)

   GHS Label elements, including precautionary statements
   Pictogram
   Signal word       Danger

   Hazard statement(s)
   H227              Combustible liquid
   H302              Harmful if swallowed
   H330              Fatal if inhaled

   Precautionary statement(s)
   P260              Do not breathe dust/ fume/ gas/ mist/ vapors/ spray
   P284              Wear respiratory protection
   P310              Immediately call a POISON CENTER or doctor/ physician

   HMIS Classification
Health hazard 2
Flammability 2
Physical hazards 1

NFPA Rating
Health hazard 2
Fire 2
Reactivity Hazard 0

Potential Health Effects
Inhalation May be fatal if inhaled. May cause respiratory tract irritation
Skin May be harmful if absorbed through skin. May cause skin irritation
Eyes May cause eye irritation
Ingestion Toxic if swallowed

3. COMPOSITION AND INFORMATION ON INGREDIENTS:

SYNONYM
?-Toluenethiol
?-Tolyl mercaptan

Formula C7 H8 S
Molecular Weight 124.21 g/mol
CAS-No EC-No
100-53-8 202-862-5

4. FIRST-AID GUIDE:

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

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a
physician

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a
physician

In case of eye contact
Flush eyes with water as a precaution

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth
with water. Consult a physician

5. FIRE-FIGHTING GUIDE:
**Suitable extinguishing media**
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water

**Special protective equipment for firefighters**
Wear self contained breathing apparatus for firefighting if necessary

**Hazardous combustion products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides

**Further information**
Use water spray to cool unopened containers

6. **ACCIDENTAL RELEASE GUIDE:**

**Personal precautions**
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapor scan accumulate in low areas

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains

**Methods and materials for containment and cleaning up**
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal

7. **HANDLING AND STORAGE:**

**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage

Handle and store under inert gas. Air and moisture sensitive

8. **EXPOSURE AND PERSONAL PROTECTION:**
Contains no substances with occupational exposure limit values

**Personal protective equipment**

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands

**Eye protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU)

**Skin and body protection**
Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace

**Hygiene measures**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product

9. **PHYSICAL AND CHEMICAL PROPERTIES:**

**Appearance**
Form LIQUID
Color COLORLESS TO PALE YELLOW

**Safety data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>Melting point (°C)</td>
<td>&lt;30</td>
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<tr>
<td>Boiling point (°C)</td>
<td>194</td>
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<tr>
<td>Flash point (°F)</td>
<td>Closed Cup 158</td>
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<tr>
<td>Ignition temperature</td>
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<tr>
<td>Auto Ignition temperature</td>
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<tr>
<td>Lower explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Vapor pressure (mm Hg @20 °C)</td>
<td>0.625</td>
</tr>
<tr>
<td>Density @25 °C</td>
<td>1.058</td>
</tr>
<tr>
<td>Water solubility</td>
<td>INSOLUBLE</td>
</tr>
</tbody>
</table>
Partition coefficient:
- n-octanol/ water: no data available
- Relative vapor density: no data available
- Odor: MEAT, ROASTED, HARS, BURNT
- Odor threshold: no data available
- Evaporation rate: no data available

10. STABILITY AND REACTIVITY:

Chemical stability
Stable under recommended storage conditions

Possibility of hazardous reactions
No data available

Conditions to avoid
- Heat, flames and sparks

Materials to avoid
- Strong bases, Strong oxidizing agents

Hazardous decomposition products
- Hazardous decomposition products formed under fire conditions: Carbon oxides, Sulphur oxides
- Other decomposition products: no data available

11. TOXICOLOGICAL INFORMATION:

Acute toxicity

Oral LD50
- LD50 Oral - rat - 493 mg/kg

Inhalation LC50
- LC50 Inhalation - mouse - 4 h - 178 ppm

Dermal LD50
No data available

Other information on acute toxicity
No data available

Skin corrosion/irritation
No data available

**Serious eye damage/eye irritation**
No data available

**Respiratory or skin sensitization**
No data available

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
Carcinogenicity - mouse - Skin
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.
Tumorigenic: Tumors at site or application.

**IARC**
No components of this product present at levels greater than or equal to 0.1% is identified as probable. Possible or confirmed human carcinogen by IARC

**ACGIH**
No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH

**NTP**
No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP

**OSHA**
No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA

**Reproductive toxicity**
No data available

**Teratogenicity**
No data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
No data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
No data available

**Aspiration hazard**
No data available

**Potential health effects**
Inhalation  May be fatal if inhaled. May cause respiratory tract irritation
Ingestion  Toxic if swallowed
Skin  May be harmful if absorbed through skin. May cause skin irritation
Eyes  May cause eye irritation

**Signs and Symptoms of Exposure**
Cough, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated

**Synergistic effects**
No data available

**Additional Information**
RTECS: XT8650000

12. **ECOLOGICAL INFORMATION:**

**Toxicity**
No data available

**Persistence and degradability**
No data available

**Bioaccumulative potential**
No data available

**Mobility in soil**
No data available

**PBT and vPvB assessment**
No data available

**Other adverse effects**
No data available

13. **DISPOSAL RECOMMENDATIONS:**

**Product**
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material

**Contaminated packaging**
Dispose of as unused product
14. TRANSPORTATION INFORMATION:

DOT (US)
UN number: 3334 Class: 9 Packing group: III
Proper shipping name: AVIATION REGULATED LIQUID N.O.S.

IMDG
UN number: 3334 Class: 9 Packing group: III
Proper shipping name: AVIATION REGULATED LIQUID N.O.S.

IATA
UN number: 3334 Class: 9 Packing group: III
Proper shipping name: AVIATION REGULATED LIQUID N.O.S.

15. REGULATORY INFORMATION:

OSHA Hazards
Combustible Liquid, Highly toxic by inhalation, Toxic by ingestion

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right to Know Components
Toluene-?-thiol CAS-No 100-53-8 Revision Date 1993-04-24

Pennsylvania Right to Know Components
Toluene-?-thiol CAS-No 100-53-8 Revision Date 1993-04-24

New Jersey Right to Know Components
Toluene-?-thiol CAS-No 100-53-8 Revision Date 1993-04-24

California Prop 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm
16. OTHER INFORMATION:

The information in this MSDS was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond M&U’s control, it is the responsibility of the user both to determine safe conditions for use of this product and to assume liability for loss, damage, or expense arising out of the product’s improper use. No warranty expressed or implied regarding the product described herein will be created by or inferred from any statement or omission in the MSDS. Various federal, state, or provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in the MSDS. The user should review these regulations to ensure full compliance.