1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the substance/preparation

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>PETOL 46/48-3MB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Name</td>
<td>Glycerol propoxylated-co-ethoxylated</td>
</tr>
<tr>
<td>Family</td>
<td>Polyether Polyols</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>3500 - 3600</td>
</tr>
</tbody>
</table>

1.2. Uses of the substance/preparation

Petol 46/48-3MB is a heteropolymer triol designed for manufacture of standard and soft flexible slabstock polyurethane foams. It is a BHT-free product that can be processed on all standard slabstock machinery.

1.3. Company/undertaking identification

OLTCHIM S.A.
Address | 1 Uzinei Street, 240050 - Ramnicu Valcea, Romania
Telephone | +40/250/701200
Fax | +40/250/735446
e-mail | oltchim @oltchim.ro

1.4. Emergency telephone number | +40 / 250/738141

2. HAZARDS IDENTIFICATION

Health effects: The product generally present no significant hazard in use when simple precaution are followed. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Product poses a little or no hazard if spilled.

Environmental effects: No data available.

Emergency overview: Slight fire hazard when exposed to heat or flame. Irritating gases/fumes may be given off during burning or thermal decomposition. When mixed with air and exposed to ignition source, vapor can burn in open or explode if confined. The vapor is heavier than air and
will accumulate in low area. PETOL 46/48-3MB is a polymer and is not classified as hazardous product.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous components/constituents</th>
<th>Concentration %,wt.</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Hazard Symbol</th>
<th>Risk phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol propoxylated-co-ethoxylated</td>
<td>99.5</td>
<td>9082-00-2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST - AID MEASURES

*Seek medical attention immediately in all cases of exposure!*

**Inhalation:** Product inhalation can cause slight irritation to the respiratory system. Symptoms may include cough and sometimes slight dizziness. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Skin contact:** Skin contact with the product is not likely to result in a significant irritation. Remove contaminated clothing and wash before reuse. Wash skin with soap and plenty of water immediately at least 15-20 minutes, until no evidence of chemical remains.

**Eye contact:** Contact with eyes cause slight temporary irritation. Wash eyes immediately with large amounts of lukewarm water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains at least 15-20 minutes. Get medical attention immediately if pain, blinking, tears or redness develops.

**Ingestion:** Polyether polyol have low to very low oral toxicity. Swallowing small amount of this product is not likely to cause injury. If ingested, do not induce vomiting unless directed to do by medical personnel.

**Note to Physician:** No specific antidote. Treat symptomatically and supportively.

5. FIRE - FIGHTING MEASURES

**Suitable extinguishing media:** Dry chemical, carbon dioxide, dry chemical, foam and water spray.

**Unsuitable extinguishing media:** None

**Exposure hazards:** Slight fire hazard when exposed to heat or flame. Heat from fire can generate flammable vapor. When mixed with air and exposed to ignition source, vapor can burn in open or explode if confined. The vapor is heavier than air and will accumulate in low area.
Protection of the fire-fighters: Firefighters should be equipped with protective equipment and self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Other information: Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: No special protection. Ventilate area of leak or spill. Wear appropriate personal protective equipment. Slippery walking. Spread granular cover.

Environmental precautions: Prevent contamination of ground and surface water by isolating the hazard area. Contain and recover liquid when possible. Keep closed containers and dispose according to all applicable federal, state or local environment regulations.

Methods of cleaning up: Absorb spills with dry sand, earth or similar non-combustible absorbent material then collect into drums for later disposal. Incinerate or bury in a licensed facility if permitted.

Special precautions: Do not use combustible materials, such as saw dust. Do not flush to sewer! Slippery walking! Spread granular cover!

7. HANDLING AND STORAGE

Handling: No special measures required. It is not considered a hazardous material in most industrial operations. Sources of ignition such as smoking and open flames are prohibited where this compound is handled.

Storage: Store in tightly closed containers, in dry and well ventilated areas, between 15-20°C. Petol 46/48-3MB will absorb water if the product container is not secured properly. This may affect reactivity, appearance and performance. Therefore, keep drums tightly closed to prevent contamination. Use dry nitrogen or low dew point air for tank padding. Avoid contact with isocyanates.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: Not established

Engineering controls: No special ventilation is recommended under anticipated conditions of normal use beyond that needed for normal comfort control. Good general ventilation should be sufficient for most conditions.

Respiratory protection: No special respirator protection is recommended under anticipated conditions of normal use with adequate ventilation. Where excessive vapor or mist may result from use, use respiratory protection equipment recommended or approved by appropriate local, state or international agency.
Hand protection: Wear chemical protective gloves.

Eye / Face protection: Chemical splash goggles and/or face shield must be worn when possibility exist for eye contact due to splashing or spraying liquid, airborne particles or vapor. Contact lenses must not be worn. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Skin protection: Not normally considered a skin hazard. Wear impervious protective clothing including boots, apron, if needed. Wash hands and other exposed area with soap and water before eating, drinking, smoking and when leaving work.

Other precautions: Maintain shower, eye wash fountain and quick-drench facilities in work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information
Appearance Clear liquid
Odor Odourless

Important health, safety and environmental information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>N/A</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Decomposes.</td>
</tr>
<tr>
<td>Flash point</td>
<td>200°C</td>
</tr>
<tr>
<td>Flammability</td>
<td>Flammable under open flame</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No oxidizing properties</td>
</tr>
<tr>
<td>Vapor pressure, Pa at 25°C</td>
<td>N/A</td>
</tr>
<tr>
<td>Specific gravity, at 25°C</td>
<td>1.015, g/cm³</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Partially soluble</td>
</tr>
<tr>
<td>Partition coefficient (log K&lt;sub&gt;ow&lt;/sub&gt;)</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor relative density (air=1)</td>
<td>N/A</td>
</tr>
<tr>
<td>Dynamic viscosity, at 25°C</td>
<td>500-650 cP</td>
</tr>
</tbody>
</table>

Other informations

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point</td>
<td>N/A</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>N/A</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Chemical stability: Stable under normal temperature and pressure, but hygroscopic.

Conditions to avoid: Moisture, ignition sources and incompatibles.

Materials to avoid: Isocyanates and strong acids, alkalis and oxidizers.

Hazardous decomposition products: Carbon monoxide and dioxide, aliphatic fragments.
Hazardous polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Animal toxicity data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC₅₀ / inhalation-rat</td>
<td>&gt;200mg/l/h</td>
</tr>
<tr>
<td>LD₅₀ / dermal-rabbit</td>
<td>&gt;1g/kg</td>
</tr>
<tr>
<td>LD₅₀ / oral-rat</td>
<td>&gt;5g/kg</td>
</tr>
</tbody>
</table>

Acute toxicity

Inhalation: At room temperature, exposure to vapors is minimal due to low volatility. May cause slight respiratory irritation.

Eye contact: May cause slight irritation, but not corneal damage

Skin contact: May cause mild irritation.

Ingestion: Small amounts swallowed incidental to normal handling operations are not likely to cause injury.

Chronic effects: Not available data. Repeated or prolonged is not known to aggravate medical condition.

CMR effects

Carcinogenicity: No carcinogenicity effects are reported (literature data).

Mutagenicity: No information

Teratogenicity and Embryotoxicity: There is no human or animal information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyprinus carpio</td>
<td>LC₅₀ =708.8mg/l/96 h</td>
</tr>
</tbody>
</table>

Mobility: The product may enter the environment from industrial waste treatment plant discharges or spills. Low mobility in the environment due to its slight water solubility. No appreciable volatilization from water to air is expected.

Persistence and degradability: Material is expected to degrade only slowly in the environment. Recent data indicates that product will biodegrade 75% after 24 days in biological treatment plant with accommodation of activated sludge. Despite the very slow biodegradability rate the product should not present an environmental hazard in surface water / soil.

Bioaccumulative potential: Insufficient data are available to evaluate or predict the bioaccumulative potential of the product.

Other adverse effects: Material is not harmful to fish on an acute basis (LC> 100mg/l).
13. DISPOSAL CONSIDERATIONS

**Waste treatment:** What ever cannot be saved for recovery or recycling should be handled as non-hazardous waste and sent to an approved incinerator or disposed in an approved waste facility. Dispose of contaminated product, container residues and spill clean up materials in accordance with federal, state and local regulations.

**Packaging treatment:** The empty containers, tank cars and tank trucks are treated with steam and rinsed with plenty of water. The resulted effluent is treated in the same way as waste. The empty and clean containers are to be reused in conformity with regulations. Do not heat or cut container with electric or gas torch.

14. TRANSPORT INFORMATION

According to RID/ADR, IMDG/IMO Code, IATA/IT-ICAO norms for shipping of dangerous chemical substances, PETOL 46/48–3MB have not specific regulations for any mode of transportation.

15. REGULATORY INFORMATION

PETOL 46/48-3 MB is a polymer and is not classified and labeled as hazardous material according to Directive 67/548/EC. As a result, risk phrases-does not exist. This product is not listed on NLP.

16. OTHER INFORMATION

**Precautions to be taken in handling and storing:**
- Keep well ventilated the areas where the polyether ployol is stored and handled.
- When working with other polyether or other materials such as isocyanates in combination with Petol polyether polyols, please request and reference recommendations for safe handling from all suppliers.
- Handle freshly polymerized parts with care. Be aware of potential hazards of toxic vapors and of heat cure.
- Do not stack fresh polyurethane buns. Stacking can cause create insulation of heat in the buns and can result in spontaneous combustion.
- Never expose polyurethane foam to an open flame or other high heat source.

**Work hygienic practices:**
- Avoid direct contact of substance with skin/eyes.
- Protective gloves should be worn when handling freshly made polyurethane products to avoid skin contact. Skin contact with fresh polyurethane foams provides a potential hazard from residual heat and trace raw materials.
Emergency eye wash fountains and safety showers should be available in the immediate vicinity of working area.

**Interdictions:** Do not drink or eat in working area.
Do not smoke in or near working area.
The use of open flame in working areas is prohibited.

**MSDS Revisions:** This Material Safety Data Sheet is made in accordance to European Directive and will replace the previous version 5 dated April 02, 2008.

**Revised information:**
TÜV mark for Quality-Environmental Integrated System was replaced with the new one, remitted by TÜV Management GmbH.

Sources of key data uses to compile the data sheet:
National Threshold Limit Values of corresponding countries as amended in each case.
Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

This MSDS has been elaborated in accordance with Regulation (EC) No.1907/2006 REACH. The information contained here in is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product. This MSDS cannot cover all possible situations which the user may experience during handling and processing. Each aspect of the user's operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained within this MSDS should be provided to the user's employees or customers.