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

1.1. Product identifier

<table>
<thead>
<tr>
<th>Trade name</th>
<th>PETOL 48-3MB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical name</td>
<td>Glycerol propoxylated-co-ethoxylated polymer</td>
</tr>
<tr>
<td>CAS name</td>
<td>Oxirane, 2-methyl-, polymer with oxirane, ether with 1,2,3-propanetriol</td>
</tr>
<tr>
<td>CAS no.</td>
<td>9082-00-2</td>
</tr>
<tr>
<td>REACH Registration number</td>
<td>Exempted from registration according to the provision of Article 2(9) of REACH.</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>3500 - 3600</td>
</tr>
</tbody>
</table>

1.2. Relevant identified uses of the substance or mixture and uses advised against

Petol 48-3MB is hetero polymers triols, designed for the manufacture of the standard, soft and super soft flexible slabstock polyurethane foams. It can be used with or without blowing agent to produce a wide range of foam grades, ranging from low to high density.

Uses advise against: There are no uses advised against.

1.3. Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Name</th>
<th>S.C. OLTCHIM S.A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>1 Uzinei Street, 240050 Ramnicu Valcea, Romania</td>
</tr>
<tr>
<td>Phone N°</td>
<td>+40 250 701 785</td>
</tr>
<tr>
<td></td>
<td>+40 250 701 200 ext.2785, 3001, 3115</td>
</tr>
<tr>
<td>FAX N°</td>
<td>+40 250 739 760; +40 250 735 030</td>
</tr>
<tr>
<td>E-mail of competent person responsible for SDS in the MS or in the EU:</td>
<td><a href="mailto:tehnic@oltchim.com">tehnic@oltchim.com</a></td>
</tr>
</tbody>
</table>

1.4. Emergency telephone number

<table>
<thead>
<tr>
<th>European Emergency N°:</th>
<th>112</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency telephone at the company:</td>
<td>+40/250/738141- available 24h/day/365days</td>
</tr>
</tbody>
</table>

For Romania: The institution responsible with providing information in case of a health emergency is The National Institute for Public Health, Department for the International Sanitary Regulation and Toxicological Information.

Telephone: 021.318.36.06, Opening hours: Monday - Friday from 8 a.m. to 3 p.m.
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2. HAZARDS IDENTIFICATION

2.1. Classification of the substances or the mixture
2.1.1. Classification according to Regulation (EC) 1272/2008 (CLP)
Petol 48-3MB is not classified as dangerous according to Regulation (EC) 1272/2008

2.2. Label elements
Labeling according to Regulation (EC) 1272/2008 (CLP)

Signal word: No signal word

No label according to Regulation (EC) 1272/2008.

2.3 Other hazard: No other hazards identified.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Identification name</th>
<th>CAS no</th>
<th>Weight % (w/w) content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol propoxylated-co-ethoxylated polymer (Petol 48-3MB)</td>
<td>9082-00-2</td>
<td>Up to 100</td>
</tr>
</tbody>
</table>

Impurities
No impurities relevant for classification and labeling.

4. FIRST-AID MEASURES

4.1 Description of first aid measures

General Advice: If exposed or if you feel unwell: Call a Poison Center or doctor/physician. Show this safety data sheet to the doctor in attendance.

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

In case of skin contact: 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.

In case of eye contact: 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.

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Code: FDS 011
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. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

By skin contact: Skin contact with the product is not like to result in a significant irritation.

By eye contact: Contact with eyes may cause slight temporary irritation.

By inhalation: Due to low vapor pressure at room temperature, Petol polyols alone are not likely to be inhaled. Inhalation of vapors from heated materials may cause respiratory irritation and symptoms may include cough and sometimes slight dizziness. The product is not sensitising.

4.3. Indication of immediate medical attention and special treatment needed

No specific antidote. Treat symptomatically and supportively.

5. FIRE - FIGHTING MEASURES

5.1 Extinguishing media

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

Unsuitable extinguishing media: Do not use direct water stream as it may spread the fire.

5.2 Special hazards arising from the substance or mixture

Exposure hazards: Polyether polyols are low in volatility are not considered serious fire hazard. However, in the presence of an existing fire, or under the proper conditions of heat and oxygen, PETOL polyols will burn. Heat or fire may produce decomposition products, which may be hazardous.

Hazardous combustion products: Combustion products may include and are not limited to: carbon monoxide, carbon dioxide.

5.3 Advice for firefighters

Protection of the fire-fighters: Firefighters should be equipment with protective equipment and self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Fire Fighting Procedures: Keep unnecessary and unprotected personnel away from entering. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.
6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: No special protection. Ventilate area of leak or spill. Wear appropriate personal protective equipment. Spills may cause very slippery surfaces. Spread granular cover.

6.2 Environmental precautions

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.

6.3 Methods and materials for containment and cleaning up

Methods of cleaning up: Remove all ignition sources. Notify fire and environmental authorities. Minor Spills (< 1 drum): Absorb spills with dry sand, earth or similar non-combustible absorbent material then collect into drums for later disposal. Large and Major Spills (>1 drum): When large spills occur, the polyol should be contained by creating ditches or dikes with absorbent material, then transfer by mechanical means such as vacuum truck into containers, for recovery or safe disposal. Flush area with plenty of water. Waste water will be send to the WWTP. 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!

6.4 Reference to other sections

Additional advice: Refer to sections 8, 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

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. Petol 48-3MB is a hygroscopic product, thus handling should be realized in closed systems, under nitrogen blanked or using other appropriate systems in order to prevent any moisture contact.

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Code: FDS 011
7.2. Conditions for safe storage, including any incompatibilities

Storage: Store in tightly closed containers, in dry and well ventilated areas, away from UV radiation. Storage temperature between 20-30°C. Drums should be stacked to a maximum of 3 high. Prevent any moisture contamination as product is hygroscopic. 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.

Incompatible substances: Avoid contact with strong acids, alkalis and oxidizers (like peroxides and hypochlorite salts), water. Avoid unintended contact with isocyanates.

Incompatible materials: Avoid contact with copper, copper alloys and zinc.

Recommended storage & transport material: Glycerol propoxylated can be shipped and stored in stainless steel tanks, steel drums lined inside, IBC Polyethylene (HDPE) tanks. Mild steel free of mild-scale or rust and maintained in a rust-free condition can also use. Hoses should be of polypropylene, stainless steel or wire bound canvas.

7.3 Specific end use(s)

Please check Section 1.2.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

8.1.1. Occupational Exposure limit values

Occupational Exposure Limit (OEL), 8 h TWA: Not established
Short-term exposure limit (STEL), 15 min: Not established

8.2. Exposure control

8.2.1. 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.

8.2.2. Personal Protection Equipment

Eye / Face protection: Use chemical safety goggles and/or a full face shield where splashing is
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.

Hand protection: Handle with gloves which were inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. The selected protective gloves have to satisfy the specifications of the standard EN 374 derived from it.

Examples of preferred glove barrier materials:
- Butyl rubber
- Nitrile/butadiene rubber
- Polyvinyl alcohol (“PVA”)
- Neoprene:
- Polyvinyl chloride (PVC or “vynil”)
- Natural rubber (“latex”)

For prolonged or frequently repeated contact a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended.

**NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory protection: No special respirator protection is recommended under anticipated conditions of normal use with adequate ventilation. However, if material is heated or sprayed, without sufficient ventilation use an approved air-purifying respirator. Organic vapor respirator with a particulate pre-filter may be worn if vapors are detected or irritating.

For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

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

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9. PHYSICAL AND CHEMICAL PROPERTIES

General information
Appearance  Clear liquid
Odor  Odourless

Important health, safety and environmental information
pH  N/A
Boiling point  Decomposes.
Flash point  200°C
Flammability  Flammable under open flame
Explosive properties  Non explosive
Oxidizing properties  No oxidizing properties
Vapor pressure, Pa at 25 °C  N/A
Specific gravity, at 25°C  1.015, g/cm³
Water solubility  Partially soluble
Partition coefficient (log Kow)  N/A
Vapor relative density (air=1)  N/A
Dynamic viscosity, at 25°C  500-650 cP

Other informations
Melting point  N/A
Autoignition temperature  N/A

10. STABILITY AND REACTIVITY

10.1. Reactivity
Polyol reactivity varies with increasing primary hydroxyl content (at a constant unsat).

10.2. Chemical stability: Stable under normal recommended storage conditions. Hygroscopic (attract water from atmosphere and environment). Contact with diisocyanates leads to an exothermically polymerization reaction.

10.4. Conditions to avoid: Moisture, ignition sources and incompatibles.

10.5. Incompatible materials: Avoid contact with strong acids, alkalis and oxidizers such as peroxides and hypochlorite salts, water. Avoid unintended contact with isocyanates.

10.6. Hazardous decomposition products: Carbon monoxide, carbon dioxide and aliphatic fragments.

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Code: FDS 011
11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute toxicity</strong></td>
<td>Oral: $LD_{50}$ (rat-male/female) $&gt;10000$ mg/l/h</td>
</tr>
<tr>
<td></td>
<td>Dermal: $LD_{50}$ (rabbit-male-female) $&gt;5$ g/kg</td>
</tr>
<tr>
<td></td>
<td>Inhalation: $LC_{50}$ (rat-male/female) $&gt;5$ g/kg</td>
</tr>
<tr>
<td><strong>Irritation/Corrosion</strong></td>
<td>Eye: May cause slight irritation, but not corneal damage.</td>
</tr>
<tr>
<td></td>
<td>Skin: Contact with the product is not likely to result in a significant irritation.</td>
</tr>
<tr>
<td></td>
<td>Inhalation: At room temperature, exposure to vapors is minimal due to low volatility. May cause slight respiratory irritation.</td>
</tr>
<tr>
<td><strong>Sensitisation</strong></td>
<td>This product is not a sensitizer.</td>
</tr>
<tr>
<td><strong>Repeated dose toxicity</strong></td>
<td>Not available data. Repeated or prolonged is not known to aggravate medical condition.</td>
</tr>
<tr>
<td><strong>Mutagenicity</strong></td>
<td>Genetic toxicity: negative</td>
</tr>
<tr>
<td><strong>Carcinogenity</strong></td>
<td>Product is of no concern with regard to carcinogenicity</td>
</tr>
<tr>
<td><strong>Toxicity for reproduction</strong></td>
<td>Product is not toxic for reproduction</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

12.1. Ecological Information

12.1. **Toxicity:** This polyol is not expected to present a hazard to aquatic organism (LC50/EC50 $>700$ mg/L for the most sensitive species tested)

**Mobility:** This product are nonvolatile and partially water soluble, so environmental releases would tend to migrate toward or remain in water. They would not persist in the environment and would be removed by biological wastewater-treatment facilities.

**Persistence and degradability:** Material is expected to degrade in the environment.

**Bioaccumulative potential:** It is not expected to have a bioaccumulative potential.
13. DISPOSAL CONSIDERATIONS
This section contains generic advice and guidance.

13.1 Waste treatment methods

13.1.1 Product
Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

13.1.2. Packaging
Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
Do not heat or cut container with electric or gas torch.

Waste Code: No waste key number as per the European Waste Types List can be assigned to this product, since such classification is based on the (as yet undetermined) use to which the product is put by the consumer.

Relevant European legislation regarding waste:

14. TRANSPORT INFORMATION

ADR: Petol 48-3MB is not classified under ADR regulations.
RID: Petol 48-3MB is not classified under RID regulations.

Maritime transport IMDG: Petol 48-3MB is not classified under IMDG regulations.

Air transport ICAO/IATA: Petol 48-3MB is not classified under IATA regulations.
15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant information regarding the European legislation
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)
Regulation referring to the International Carriage of Dangerous Goods by Rail (RID
International Maritime Dangerous Goods (IMDG)

Authorization: Petol 48-3MB is not subject to authorisation procedure.

Restrictions on use: no restriction

Other EU regulations: Petol 48-3MB is not subject to:
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer
Regulation (EC) No 850/2004 on persistent organic pollutants
Regulation (EC) No 649/2012 concerning the export and import of dangerous chemicals

15.2 Chemical safety Assessment

An exposure assessment is not required as Petol 48-3MB is a polymer and is not classified and labeled as hazardous material according to Regulation (EC) No. 1272/2008.
16. OTHER INFORMATION

Data are based on our latest knowledge but do not constitute a guarantee for any specific product features and do not establish a legally valid contractual relationship.

16. 1. Abbreviation and acronyms (NOT ALL ARE USED IN THIS SDS)
AC Article category
ADR European agreement concerning the international carriage of dangerous goods by road
BSAF Bio soil accumulation factor
BCF Bio concentration factor
CAS Chemical Abstracts Service
CLP Classification, labelling and packaging
CMR Carcinogenic, mutagenic or toxic for reproduction
CSA/CSR Chemical safety assessment / Chemical safety report
DNEL Derived no effect level
EC10 Concentration of a substance where 10% of the population is affected
EC50 Concentration of a substance where 50% of the population is affected
ECHA European chemicals agency
EINECS EU list of existing chemical substances
EmS Emergency schedule
ERC Environmental release category
ES Exposure scenario
eSDS Extended safety data sheet
GHS Globally harmonised system
IATA-DGR International air transport association - dangerous goods regulations
ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air
IU Identified use
IUPAC International Union of Pure and Applied Chemistry
IBC code International code for the construction and equipment of ships carrying dangerous chemicals in bulk
IMDG International maritime dangerous goods
KP Partition coefficient
LC10 Lethal concentration of a substance that can be expected to cause death in 10% of the population
LC50 Lethal concentration of a substance that can be expected to cause death in 50% of the population
LD50 Lethal dose of a substance that can be expected to cause death in 50% of the population
NO(A)EC No observed (adverse) effect concentration
NO(A)EL No observed (adverse) effect level
OECD Organisation for economic co-operation and development
OEL Occupational exposure limit
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PBT Persistent, bioaccumulative, and toxic
PC Product category
PNEC Predicted no-effect concentration
PROC Process category
REACH Registration, evaluation, authorisation and restriction of chemicals (i.e. Regulation (EC) No. 1907/2006)
RID International rule for transport of dangerous substances by railway
SDS Safety data sheet
STOT Specific target organ toxicant
STP Sewage treatment plant
SU Sector of end use
TWA Time weighted average
vPvB Very persistent, very bioaccumulative

16.2. Key literature references
The information provided in this SDS is consistent with the information provided in the literature data. See also:
http://chelist.jrc.ec.europa.eu
http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
https://chem.nlm.nih.gov/chemidplus

16.3. Revision: Revision 3 replaced revision no.2 dated November 23, 2015.

All chapters of this safety data sheet have been revised according to the provision of:

Disclaimer:

Oltchim provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. Furthermore, this safety data sheet is made up based on the legal requirements as set by EC 1907/2006 (REACH) and EC Regulation 830/2015.

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