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

1.1. Product identifier

<table>
<thead>
<tr>
<th>Trade name</th>
<th>PETOL160-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical names</td>
<td>1,2,3-Propanetriol methylxirane polymer; Glycerine propylene oxide polymer; Glycerine-propoxylated polyether polyol</td>
</tr>
<tr>
<td>CAS no.</td>
<td>25791-96-2</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>1055</td>
</tr>
</tbody>
</table>

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

Petol 160-3 is a polyoxypropylene triol, the standard polyol for one–component spray foams. The product can also be used in polyol blends in manufacturing polyurethane elastomers, coatings, adhesives and special polyurethane foams, as a flexibility agent for epoxy resin.

Main application: as a flexibility agent for epoxy resins, hydraulic fluids, polyurethane elastomers, lubricants, one component foams, CASE applications, rigid foams formulations.

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>
<tr>
<td>For Romania- The institution responsible with providing information in case of a health emergency is The</td>
<td>Telephone: 021.318.36.06, Opening hours: Monday - Friday from</td>
</tr>
</tbody>
</table>

Elaborated by: Technical & Development Department
Code: FDS 011
2. HAZARDS IDENTIFICATION

2.1. Classification of the substances or the mixture

2.1.1. Classification according to Regulation (EC) 1272/2008 (CLP)

Petol 160-3 is not classified as dangerous according to Regulation (EC) 1272/2008

2.2. Label elements

Labeling according to Regulation (EC) 1272/2008

Signal word: No signal word

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

2.3 Other hazard: The substance does not meet the criteria for PBT or vPvB substance according to Regulation (EC) 1907/2006, Annex XIII. No other hazard.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Identification name</th>
<th>CAS no</th>
<th>Weight content, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,3-Propanetriol methyloxirane polymer</td>
<td>25791-96-2</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.
**SAFETY DATA SHEET**
Prepared in accordance with Annex II of REACH regulation EC 1907/2006 and Regulation (EC) 453/2010

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**Following inhalation:** Due to low vapor pressure, this product is not likely to be inhaled when handled at room temperature. When material is heated and/or if a fine mist is being generated, local ventilation and respiratory protection may be required. Remove the affected person to fresh air. If any ill effects appear get medical attention immediately.

**Following skin contact:** Wash skin with soap and plenty of water immediately at least 15 minutes, until no evidence of chemical remains. If skin irritation occurs give medical attention

**Following eye contact:** Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains at least 15 minutes. Get medical attention immediately if pain, blinking, tears or redness persist.

**Following ingestion:** Glycerol propoxylated polyol has low to very low oral toxicity. If polyol is swallowed, give large amount of water to dilute, but never give fluids if patient is unconscious or is having convulsions. For large amount of polyol swallowed, seek 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.

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5.2 Special hazards arising from the substance or mixture

**Exposure hazards:** Petol polyol have a low vapours pressure and a flash point above 200°C and consequently are not considered to have a serious fire hazard. However, due the fact that it is an organic material, this polyol will burn under the right conditions of heat and oxygen supply or in presence of an existing fire. Heat from fire can generate hazardous vapors. Burning liquids may be moved by flushing water to protect personnel and minimize damage. Do not use direct water stream as it may spread the fire.

**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. Remove sources of ignition and surrounding the affected area. For protective equipment see section 8.

**6.2 Environmental precautions:** Petol polyol is nonvolatile, making evaporation to the atmosphere unlikely. Product would not persist in the environment and would be removed by biological wastewater-treatment facilities. Small spills should be absorbed with sand or sawdust. Material spilled on concrete and metal surfaces may cause a slipping hazard. If a large spill does occur, the material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements.

**6.3 Methods and materials for containment and cleaning up**

**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.

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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 section 8, 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe 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 160-3 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.

Advice on general occupational hygiene: Avoid contact with skin and eyes. General occupational hygiene measures are required to ensure safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no drinking, eating and smoking at the workplace. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed containers/tanks, in dry and well ventilated areas away from UV radiation, between 20-30°C. Prevent any moisture contamination as product is hygroscopic. This may affect reactivity, appearance and performance. Drums should be stacked to a maximum of 3 high. 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 material: Petol polyol can be shipped and stored in stainless steel tanks, steel drums lined inside, IBC Polyethylene (HDPE) tanks. Hoses should be of polypropylene, stainless steel or wire bound canvas.

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.
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 possible. Equipment for eye protection should be tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Maintain eye wash fountain and quick-drench facilities in work area.

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 (“later”)

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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.

8.2.3. Environmental exposure control: The product does not pose any risk to the environment.
Avoid uncontrolled release of the product in environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information
Appearance Clear, viscous liquid
Odor Odourless or mild odor

Important health, safety and environmental information
pH 4.5-6.5
Boiling point Decomposes.
Flash point, min 200\degree C
Flammability Not flammable
Explosive properties Non explosive
Oxidizing properties No oxidizing properties
Vapor pressure,Pa at 25 \degree C N/A
Specific gravity, at 25\degree C 1.018, g/cm³
Water solubility Partially soluble
Partition coefficient (log \textit{K}_{ow}) N/A

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Vapor relative density (air=1)  N/A
Dynamic viscosity, at 25°C  240-300 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 poly-merization 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.

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
</tr>
</tbody>
</table>
| Irritation/Corrosion  | Eye: May cause slight irritation, but not corneal damage.  
Skin: Contact with the product is not like to result in a significant irritation.  
Skin-rabbit LD50>16 ml/kg  
Inhalation: At room temperature, exposure to vapors is minimal due to low volatility. May cause slight respiratory irritation.  
inhalation-rat  LC50>200mg/l/h |
| Sensitisation  | This product is not a sensitizer. |
| Repeated dose toxicity  | Not available data. Repeated or prolonged is not known to aggravate |

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Code: FDS 011
12. ECOLOGICAL INFORMATION

Ecotoxicity: This polyol is not expected to present a hazard to aquatic organism (LC50/EC50 >1000 mg/L for the most sensitive species tested)

Mobility: This product are nonvolatile and partially 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: Polyols with molecular weight of less than or equal to 2000 are expected to be readily biodegradable. Polyols with a molecular weight of greater than 2000 are not expected to be readily biodegradable.

Bioaccumulative potential: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

13. DISPOSAL CONSIDERATIONS

This section contains generic advice and guidance.

13.1 Waste treatment methods

13.1.1 Product disposal

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.
Packaging 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 160-3 is not classified under ADR regulations.

RID: Petol 160-3 is not classified under RID regulations.

Maritime transport IMDG: Petol 160-3 is not classified under IMDG regulations.

Air transport ICAO/IATA: Petol 160-3 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


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Code: FDS 011
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 160-3 is not subject to authorisation procedure.

**Restrictions on use:** no restriction

**Other EU regulations:** Petol 160-3 is not subject to:
- Is not a SEVESO substance according Directive 2012/18/EU (SEVESO III).

**15.2 Chemical safety Assessment**
An exposure assessment is not required as Petol 160-3 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
- 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
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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
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://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

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Code: FDS 011
16.3. Revision: Revision 4 replaced revision no.3 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.