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

1.1. Product identifier

<table>
<thead>
<tr>
<th>Trade name</th>
<th>PETOL PA 500-5D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical name</td>
<td>Diethylenetriamine, propoxylated</td>
</tr>
<tr>
<td>EC no.</td>
<td>608-352-2</td>
</tr>
<tr>
<td>CAS no.</td>
<td>29380-50-5</td>
</tr>
<tr>
<td>REACH Registration number</td>
<td>Registration deadline May 31, 2018</td>
</tr>
<tr>
<td>Molecular weight range</td>
<td>600</td>
</tr>
<tr>
<td>Chemical characterization</td>
<td>UVCB substance</td>
</tr>
</tbody>
</table>

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

Petol PA 500-5D polyol is designed for blending with other polyols for the production of rigid polyurethane foams for thermal insulation applied by spray technique (roofs, floors, walls, tanks) or by pouring technique (refrigerators, freezers, panels).

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, Working hours: Monday - Friday from 8 a.m. to 3 p |
|------------------------|---------------------|

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

2.1. Classification of the substance or the mixture
2.1.1. Classification according to Regulation (EC) 1272/2008 (CLP)

Petol 500-5D is not classified according to Regulation (EC) 1272/2008 (CLP).

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

Signal word: No signal word

2.3 Other hazard: The substance does not meet the criteria for PBT or vPvB substance.
No other hazards identified.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>EC No</th>
<th>Classification according to Reg (EC) No. 1272/2008</th>
<th>Concentration ,% (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethylenetriamine, propoxylated</td>
<td>29380-50-5</td>
<td>608-352-2</td>
<td>no</td>
<td>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.

Following inhalation: Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Following skin contact: Remove contaminated clothing and wash before reuse. Wash skin with soap and plenty of water immediately at least 15 minutes, until no evidence of chemical remains.

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, tears or redness persist.

Following Ingestion: Not expected to be an important route of entry into the body. The product has low to very low oral toxicity. If accidentally ingested, seek medical attention.

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

By inhalation: Due to their low vapor pressure, this product is not likely to be inhaled when handled at room temperature. Vapor from heated materials may cause respiratory irritation.

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

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

Chronic effects: No chronic hazard.

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, chemical foam and water spray.

Unsuitable extinguishing media: None

5.2 Special hazards arising from the substance or mixture

Exposure hazards: Petol PA 500-5D is an organic material that will burn under the right conditions of heat and oxygen supply. If heated to decomposition in a confined area, they may generate sufficient volatile gases to be an explosion hazard.

5.3 Advice for firefighters

Protection of the fire-fighters: No special protection required. It is recommended full protective equipment and self-contained breathing apparatus.

Hazardous combustion products: Carbon monoxide and carbon dioxide.

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Code: FDS 011
6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Keep unnecessary and unprotected personnel away from entering. Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8). Do not touch or walk through spill material. Shut off all ignition sources.

For emergency responders: Wear adequate personal protective equipment. Wear appropriate personal protective equipment. Spills may cause very slippery walking. 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: 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. Wash area from residues with plenty of water. Contaminated water should be retained, not being allowed to flow into ground or surface water.

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

Protective measures: 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. Since alkoxylated amines are handled together with diisocyanates, proper distinction between these two kinds of products is essential in order to avoid undesired mixing resulting in uncontrolled polymerization.

Advice on general occupational hygiene:
- 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.
- Do not wear contaminated clothing at home.

7.2. Conditions for safe storage, including any incompatibilities

Storage: Store in tightly closed containers, in dry and well ventilated areas, between 15-30°C, away from UV light. Prevent any moisture contamination as product is hygroscopic. Use dry nitrogen or low dew point air for tank padding. Keep drums tightly closed to prevent contamination. Keep away from diisocyanates, in order to avoid undesired mixing resulting in uncontrolled polymerization.

Incompatible substance: Avoid contact with isocyanates, strong acids, alkalis and oxidizers.

Recommended storage & transport material: Stainless steel, mild steel free of mild-scale or rust and maintained in a rust-free condition, mild steel lined inside, polypropylene, Teflon, IBC Polyethylene (HDPE) tanks.

Hoses should be of polypropylene, stainless steel or wire bound canvas.

Incompatible substance: Avoid contact with strong acids, alkalis and oxidizers (such as peroxides and hypochlorite salts). Avoid unintended contact with isocyanates. The reaction of polyols and isocyanates generates heat.

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

Engineering controls: Good general dilution ventilation matched to the conditions of product use is recommended to help minimize potential exposures. Use local exhaust ventilation.

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: Wear impervious protective clothing for chemical industry including boots, apron, if needed.
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, use an approved air-purifying respirator. Organic vapor respirator with a particulate pre-filter may be worn if vapors are detected or irritating.
SAFETY DATA SHEET
Prepared in accordance with Regulation (EC) 830/2015 amending
Regulation EC 1907/2006, REACH
PETOL PA 500-5D

Revision:3 Last up date: August 25, 2016 Issued date: March 15, 2011 page 7/12

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information
Appearance yellow-brown clear viscous liquid
Odour low

Important health, safety and environmental information
pH N/A
Boiling point decomposition before boiling
Flash point, min. 188, °C
Flammability not flammable
Explosive properties non explosive
Oxidizing properties No oxidizing properties
Vapour pressure, at 20 °C 0.24 mBar
Partition coefficient (log $K_{ow}$) 0.09 - 0.78 Log P
Vapour relative density (air=1) N/A
Dynamic viscosity, at 25°C 5500 - 7500 cP
Density, at 25°C 1.01 - 1.10 g/cm³
Water solubility > 1000 g/L

Other informations
Melting point -2°C - +2°C
Autoignition temperature 350°C

10. STABILITY AND REACTIVITY

10.1. Reactivity: See point 10.5.

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

10.3. Possibility of hazardous reactions: Contact with diisocyanates could rinse in an uncontrolled
polymerization.

OLTCHIM This information only concerns the above mentioned product and does not need to be
valid if used with other product(s) or in any process. The information is to our best present knowledge correct and
complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the
information is appropriate and complete for his special use of this product.
Code: FDS 011
10.4 **Conditions to avoid:** heat, flame, source of ignition and incompatibles.

10.5 **Incompatible materials:** Isocyanates, strong acids, alkalis and oxidizers.

10.6. **Hazardous decomposition products:** None.

### 11. TOXICOLOGICAL INFORMATION

**Animal toxicity data**
The product PETOL PA 500-5D is not classified as human health hazardous under Romanian and European regulations. Polyols have a very low acute toxicity, according to literature data:

- **Oral toxicity:** \(L_D_{50}\) oral, rats > 2000 mg/kg bw
- **Dermal toxicity:** \(L_D_{50}\) skin, rats > 2000 mg/kg bw

**Skin irritation:** According to Regulation (EC) No. 1272/2008, the test item has not been classified into any category.

**Acute toxicity**

- **Ingestion:** Small amounts swallowed incidental to normal handling operations are not likely to cause injury.
- **Inhalation:** Due to low pressure vapor not represent a route of exposure.
- **Eye contact:** May cause slight temporary eye irritation.
- **Skin contact:** May cause slight irritation.

**CMR effects:** Non carcinogenic, mutagenic or reprotoxic substance.

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**
Detailed studies have not been yet conducted concerning the environmental fate of the product. Assessment largely or completely is based on data for similar materials.

**Fish**  *Leuciscus idus*  \(L_C_{50}\) > 100mg/l

**Mobility:** The product may enter the environment from industrial waste treatment plant discharges or spills. No appreciable volatilization from water to air is expected.

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Code: FDS 011
Persistence and degradability: Material is expected to degrade only slowly in the environment.

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

Other adverse effects: This product is not harmful to fish on acute basis (LC₅₀ > 100mg/l).

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.

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.

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.

Relevant European legislation regarding waste:
Regulation (Ec) No 1013/2006 of the European Parliament and of the Council on shipments of waste, with subsequent modifications and additions

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Code: FDS 011
14. TRANSPORT INFORMATION

ADR: Petol PA 500-5D is not classified under ADR regulations.

RID: Petol PA 500-5D is not classified under RID regulations.

Maritime transport IMDG: Petol PA 500-5D is not classified under IMDG regulations.

Air transport ICAO/IATA: Petol PA 500-5D 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 PA 500-5D is not subject for authorization

Restrictions on use: no restriction

Other EU regulations: Petol 500-5D 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

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Code: FDS 011
16. OTHER INFORMATION

16.1. Explanations for possible abbreviations mentioned in above sections
PBT: Persistent, bioaccumulative and toxic.
vPvB: Very persistent and very bioaccumulative.
CMR: Carcinogenic, Mutagenic, Reprotox
ES: Exposure Scenario
STEL: Short term exposure limit based
TWA: Time Weighted Average (TWA)
DNEL: Derived No Effect Level
PNEC: Predicted No-Effect Concentration
NOAEL - No observed adverse effect level
NOAEC - No Observed Adverse Effects Concentration
LOAEC - Lowest Observable Adverse Effect Concentration
EC50 - concentration of toxic material for which 50% of the tested organisms survive
LD50 - lethal dose for 50% of the tested population
LC50 - lethal concentration for 50% of the tested population
bw - body weight
UN - United Nations
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
RID: International Carriage of Dangerous Goods by Road
IMDG Code: International Maritime Dangerous Goods Code
ICAO/IATA: International Civil Aviation Organization/ International Air Transport Association

16.2. Key literature references
The information provided in this eSDS is consistent with the information provided in the REACH CSR. The CSR contains a complete reference list for all data used. Non confidential data from the REACH registration dossier are published by the ECHA, see:
https://echa.europa.eu/information-on-chemicals/registered-substances
http://chelist.jrc.ec.europa.eu


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Code: FDS 011
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.