1. Identification of the substance/mixture and of the company:
   1.1 Substance Name
   Polytetramethylene Ether Glycol (PTMEG)
   1.2 Intended Use and Use Limitations
   Recommended Use
   Raw Material for: spandex, elastomers, synthetic leathers, paints and coating materials.
   Use Limitations
   No Data Available
   1.3 Company identification
   Company: Korea PTG Co., Ltd.
   Address: 15, Yongyeon-ro 179beon-gil, Nam-gu, Ulsan Korea
   Tel, Number: Tel 82-52-257-5240, Fax 82-52-257-5246
   Emergency number: 82-52-257-5240
   Team: Safety & Environment Team

2. Hazard Identification:
   2.1 Hazard-Risk
   Not classified. However may be a slight irritation to the skin or eye depending on the experience of the person in manufacturing.
   2.2 Label element, including precautionary statements
   Hazard symbol
   The product does not require a hazard warning label in accordance with GHS criteria.
   Signal word
   None
   Hazard statement
   Not assigned
   Precautionary statement
   Not assigned
   2.3 Other hazard-Risk which are not included in the classification (NFPA)
   Health
   0
   Fire
   1
   Reactivity
   0

3. Composition/Information on Ingredients:

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>Trivial name</th>
<th>CAS No.</th>
<th>Content(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polytetramethylene Ether</td>
<td>Poly(oxytetramethylene) Glycol</td>
<td>25190-06-1</td>
<td>&gt; 99.5</td>
</tr>
</tbody>
</table>

4. First aid measures:
   4.1 In case of intrusion into eye
   Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
   4.2 In case of skin contamination
   Wash off with soap and plenty of water.
   Consult a physician.
   Launder contaminated clothing and shoes, before reuse.
4.3 In case of respiratory
Remove victim to fresh area immediately.
Give artificial respiration as needed.
Consult with a doctor immediately.

4.4 In case of ingestion
Never give anything by mouth to an unconscious person.
Rinse mouth with water. Consult a physician.

4.5 Other notice of doctor
Follow your doctor to show safety health data.

5. Explosion, fire measures:
5.1 Suitable extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Inappropriate extinguishing media
- General fire extinguishing agent and use mist sprinkler

5.2 Specific hazards arising from the chemical
Heat decomposition product
Carbon oxides
Fire/Explosion hazard
There is a slight risk of fire. Dust/Air mixtures can ignite or explode.

5.3 Protective equipment and precaution for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.
If safe to do so, remove containers from area of fire.
Prevent shatter using high-pressure water spray.
Dike for later disposal.
Avoid inhalation of Substance or combustion products.
Stay up wind and keep out of low areas.

6. Accidental release measures:
6.1 Personal precautions, protective equipment
Avoid inhalation of Substance or combustion products.
Wear personal protective equipment.
Do not touch the chemicals. Do not go across the chemicals.
Stop leak if possible without personal risk.
Do not contact/touch the Leakage Substance.
Do not pour water inside containers.
By spraying with water, reduce vapors

6.2 Environmental precautions
Absorb with sand or other non-combustible materials.
Do not let product enter drains.

6.3 Methods and materials for containment
Minor spills
Absorb it using nonflammable materials (ex. dry sand or dirt)
7. Handling and storage:

7.1 Precautions for safe handling

Avoid contact with skin and eyes.
Provide appropriate exhaust ventilation at places where dust is formed.
Clean the clothes after using chemical material.

7.2 Conditions for safe storage

Keep separated from with incompatible materials.
Store in an airtight container.
Keep container tightly closed in a dry and well-ventilated place.
Comply with local regulations for storage.

8. Exposure controls/personal protection:

8.1 Exposure limits of chemical substance,
Domestic regulation: No Exposure Limits
ACGIH regulation: No Exposure Limits
Biological exposure limits: No Exposure Limits

8.2 Appropriate engineering controls
Provide local exhaust ventilation to control vapours/mists.

8.3 Individual protective equipment
Respiratory Protection: Not normally needed. Use adequate certified respirator if there is any potential for an uncontrolled release.
Eye protection: Wear safety glasses to avoid contact with eyes.
Hands protection: Wear appropriate protective gloves to avoid contact with skin.
Body protection: Wear suitable protective clothing.

9. Physical and chemical properties:

9.1 Appearance (physical state, colour etc.): Liquid to waxy, Colourless
9.2 Odour: Negligible
9.3 Odour threshold: No Data Available
9.4 pH: No Data Available
9.5 Melting point/freezing point: 25 ℃ ~ 32 ℃
9.6 Initial boiling point and boiling range: > 204 ℃ (> 398 ℉)
9.7 Flash point: 259 ℃
9.8 Evaporation rate  No Data Available
9.9 Flammability (solid, gas)  No Data Available
9.10 Upper/lower explosive limits  No Data Available
9.11 Vapour pressure  No Data Available
9.12 Solubility  Slightly soluble
9.13 Vapour density  No Data Available
9.14 Specific gravity  0.979 (at 25 °C)
9.15 N-octanol/water partition coefficient  No Data Available
9.16 Auto-ignition temperature  No Data Available
9.17 Decomposition temperature  No Data Available
9.18 Viscosity  No Data Available
9.19 Molecular weight  250, 650, 1000, 1400, 1800, 2000, 3000
9.20 Solvent soluble  Aromatic and chlorinated solvents
9.20 Solvent soluble  Aromatic and chlorinated solvents

10. Stability and reactivity:
10.1 Chemical stability and Possibility of hazardous reactions  Stable under recommended storage conditions. But there is a risk of self-ignition at high temperature.
10.2 Conditions to avoid  Avoid heat, flame, spark and ignition source.
(Electrostatic discharge, Shock, vibration, etc.)  Avoid contact with incompatible materials.
10.3 Substance to avoid  Acid, Oxidant
10.4 Hazardous decomposition products  Carbon oxides

11. Toxicological information:
11.1 Information on the likely route of exposure
   Inhalation  Possible
   Oral  Possible
   Skin Contact  Possible
   Eye contact  Possible
11.2 Health Hazard Information
   Acute oral toxicity  LD50 11,340 mg/kg rat (650 mw, Quaker Oats)
   Acute dermal toxicity  LD50 8,370 mg/kg rabbit (650 mw, Quaker Oats)
   Acute inhalation toxicity  No Data Available
   Skin corrosion or irritation  May cause slight skin irritation.
   Serious eyes damages or irritation  May cause slight eye irritation.
   Respiratory sensitization  No Data Available
   Skin sensitization:  No Data Available
   Specific target organ toxicity substance  No Data Available
   (single exposure)
   Specific target organ toxicity substance  No Data Available
   Germ cell mutagenicity  No Data Available
   Reproductive toxicity  No Data Available
Polytetramethylene Ether Glycol (PTMEG)

Carcinogenicity
- IARC: No Data Available
- ACGIH: No Data Available
- NTP: No Data Available
- OSHA: No Data Available

Aspiration hazard: No Data Available

11.3 Numerical Scale of toxicity
(Acute toxicity Estimates)

12. Ecological information:
12.1 Ecotoxicity
- Fish: No Data Available
- Crustacean: No Data Available
- Bird: No Data Available

12.2 Persistence and degradability
- Persistence: No Data Available
- Degradability: No Data Available

12.3 Bioaccumulative potential
- Accumulative: No Data Available
- Biodegradation: No Data Available

12.4 Mobility in soil: No Data Available
12.5 Other hazardous effects: No Data Available

13. Disposal considerations:
13.1 Disposal methods: No Data Available
13.2 Disposal attention: Consider notices of regulations in case that it is indicated in waste disposal regulation.

14. Transport information:
14.1 U.S. Department of Transportation (DOT): Not regulated as dangerous good
14.2 International Maritime Organization (IMDG): Not regulated as dangerous good
14.3 International Air Transport Association (IATA): Not regulated as dangerous good

/ International Civil Aviation Organization (ICAO)

15. Regulatory information:
15.1 Korean Industrial Safety and Health Act: Not Applicable
15.2 Korea Toxic Chemicals Control Act (KCCA): Not Applicable
15.3 Safety Control of Dangerous Substances Act in Korea: Not Applicable
15.4 International Regulations

| American Management Information |  |  |
|---------------------------------|---------------------------------|
| (OSHA Regulation)               | Not Applicable                   |
| (CERCLA Regulation)             | Not Applicable                   |
| (EPCRA 302 Regulation)          | Not Applicable                   |
| (EPCRA 304 Regulation)          | Not Applicable                   |
| (EPCRA 313 Regulation)          | Not Applicable                   |
| (Rotterdam Convention material) | Not Applicable                   |
| (Stockholm Convention material) | Not Applicable                   |
| (Montreal Protocol material)     | Not Applicable                   |
| EU classification Information   | Not Applicable                   |
| (Final classification results)  | Not Applicable                   |
| EU classification Information   | Not Applicable                   |
| (Risk statement)                | Not Applicable                   |
| EU classification Information   | Not Applicable                   |
| (Safety statement)              | Not Applicable                   |

16. Other information:

16.1 Reference:
- Croner’s: Emergency Spillage Guide.
- Croner’s: Emergency First Aid Guide. Croner’s: Substances Hazardous to Health
- ERG 2004, RSAP, US DOT
- National Institute of Technology and Evaluation, Japan
- UN Recommendations on the Transport of Dangerous Goods Model Regulations, 14th Edition
- The Chemical Database, The Department of Chemistry at the University of Akron http://uakron.edu/erd
- International Chemical Safety Cards (ICSC) http://www.nihs.go.jp/ICSC
- ECB-ESIS (European chemical Substances Information System) http://ecb.jrc.it/esis
- ECOTOX Database, EPA http://cfpub.epa.gov/ecotox
- IUCLID Chemical Data Sheet, EC-ECB

16.2 Initial Issue Date
- Nov. 1996

16.3 Revision Number and Date
- Revision Number: 5
- Revision Date: Jul. 2019

16.4 Others
- No Data Available