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 and 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 Glycol</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
Major fire:
Carbon oxides
There is a slight risk of fire. Dust/Air mixtures can ignite
or explode.
5.2 Specific hazards arising from the chemical
Heat decomposition product
Fire/Explosion hazard
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 ℃
MSDS-004

Substance name: Polytetramethylene Ether Glycol (PTMEG)

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 ℃)
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

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
## Carcinogenicity

<table>
<thead>
<tr>
<th>Agency</th>
<th>Notation</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC</td>
<td>No Data Available</td>
<td></td>
</tr>
<tr>
<td>ACGIH</td>
<td>No Data Available</td>
<td></td>
</tr>
<tr>
<td>NTP</td>
<td>No Data Available</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>No Data Available</td>
<td></td>
</tr>
</tbody>
</table>

Aspiration hazard: No Data Available

### 11.3 Numerical Scale of toxicity

(Acute toxicity Estimates): No Data Available

## 12. Ecological information:

### 12.1 Ecotoxicity

<table>
<thead>
<tr>
<th>Taxa</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Crustacean</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Bird</td>
<td>No Data Available</td>
</tr>
</tbody>
</table>

### 12.2 Persistence and degradability

- **Persistence**: No Data Available
- **Biodegradation**: 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

- US Toxic Substance Chemical Control Act (TSCA)  Listed
- Canada Domestic Substance List (DSL or NDSL)  Listed on Canada's DSL List
- American Management Information (OSHA Regulation)  Not Applicable
- American Management Information (CERCLA Regulation)  Not Applicable
- American Management Information (EPCRA 302 Regulation)  Not Applicable
- American Management Information (EPCRA 304 Regulation)  Not Applicable
- American Management Information (EPCRA 313 Regulation)  Not Applicable
- American Management Information (Rotterdam Convention material)  Not Applicable
- American Management Information (Stockholm Convention material)  Not Applicable
- American Management Information (Montreal Protocol material)  Not Applicable
- EU classification Information (Final classification results)  Not Applicable
- EU classification Information (Risk statement)  Not Applicable
- EU classification Information (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://ull.chemistry.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
- Initial Assessment Report for SIAM 19, Synthetic Amorphous Silica, July 2004, UNEP, OECD.
- IMDG Code 2006 edition (Amendment 33-06), IMO

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