Safety Data Sheet (SDS)

Section 1: Identification

1.1 Product Identification

Product Name: Poly(ethylene glycol) (PEG)

Product Number: Sigma-1502025188

Brand: Sigma

CAS Number: 25322-68-3

EC Number: Not specified

Molecular Formula: (C2H4O)nH2O

Molecular Weight: Varies based on molecular weight grade

Website: Sigma Chemical

1.2 Supplier Details

Company Name: Sigma Chemical Co., Ltd.

Address: Room 2-1-2301, Jiahe Xinxing, No.130, Shandong Road, Shibei District, Qingdao City, Shandong Province, China

Phone Number: +8618661891880

Email: chemweb3@foxmail.com

Business Hours:

Monday to Friday: 9:00 AM - 6:00 PM

Saturday: 9:00 AM - 1:00 PM

Sunday: Closed

1.3 Emergency Contact Number

Emergency Contact: +8618661891880

1.4 Recommended Use and Restrictions

Recommended Use: For research and development purposes only. Not for use as a drug, household product, or in any other unapproved application.

Section 2: Hazard Identification

2.1 GHS Classification

Acute Toxicity:

Oral: Category 4, H302 (Harmful if swallowed)

Inhalation: Category 4, H332 (Harmful if inhaled)

Specific Target Organ Toxicity (Repeated Exposure):

Inhalation: Category 2, H373 (May cause damage to organs through prolonged or repeated exposure)

2.2 GHS Label Elements

Pictogram: Warning

Signal Word: Warning

Hazard Statements:

H302: Harmful if swallowed

H332: Harmful if inhaled

H373: May cause damage to organs through prolonged or repeated exposure

Precautionary Statements:

Prevention:

P260: Do not breathe dust/fume/gas/mist/vapours/spray

P264: Wash thoroughly after handling

P270: Do not eat, drink, or smoke when using this product

2.3 Physical and Chemical Hazards

Physical and Chemical Hazards: Non-flammable. Ignition sources may release hazardous combustion products.

2.4 Health Hazards

Health Hazards:

H302: Harmful if swallowed

H332: Harmful if inhaled

H373: May cause damage to organs through prolonged or repeated exposure

2.5 Environmental Hazards

Environmental Hazards: No environmental hazards identified based on current data.

Section 3: Composition/Information on Ingredients

3.1 Substance

Synonyms: Poly(ethylene glycol), PEG

Molecular Formula: (C2H4O)nH2O

Molecular Weight: Varies based on molecular weight grade

CAS Number: 25322-68-3

EC Number: Not specified

Hazardous Components:

Component: Poly(ethylene glycol)

Classification:

Acute Toxicity: Category 4 (Oral), H302

Acute Toxicity: Category 4 (Inhalation), H332

Specific Target Organ Toxicity (Repeated Exposure): Category 2, H373

Section 4: First Aid Measures

4.1 First Aid Measures

Inhalation: Remove victim to fresh air. If feeling unwell, call a POISON CENTER/doctor.

Skin Contact: Immediately wash with plenty of water for at least 15 minutes. Remove contaminated clothing and wash before reuse. Get medical attention if irritation persists.

Eye Contact: Rinse immediately with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get medical attention if eye irritation persists.

Ingestion: Do NOT induce vomiting. Rinse mouth with water. Call a POISON CENTER/doctor if feeling unwell.

4.2 Most Important Symptoms and Effects

Symptoms: Difficulty in breathing. Symptoms of overexposure may include headache, dizziness, tiredness, nausea, and vomiting.

4.3 Immediate Medical Attention and Special Treatment

Medical Treatment: Treat symptomatically.

Section 5: Firefighting Measures

5.1 Extinguishing Media

Suitable Extinguishing Agents: Use fire extinguishing methods suitable for the surrounding environment. Solid water stream may be used.

5.2 Specific Hazards Arising from the Chemical

Hazardous Combustion Products: Carbon monoxide (CO), Carbon dioxide (CO2), Gaseous hydrogen fluoride (HF)

5.3 Firefighting Precautions

Protective Equipment: Wear self-contained breathing apparatus (pressure-demand, MSHA/NIOSH approved or equivalent) and full protective equipment.

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment as required. Ground all equipment used when handling the product. Avoid contact with skin, eyes, or clothing. Remove all sources of ignition. Take precautionary measures against static discharge.

Environmental Precautions: Prevent seepage into sewage systems, workpits, and surface or ground water.

6.2 Methods and Materials for Containment and Clean-Up

Containment: For small leaks, absorb with inert absorbent material (e.g., sand, diatomite, acid binders, universal binders) or collect in a tightly sealable container. For large leaks, enclose with banks to prevent outflow and lead the leakage to a safe place for proper disposal.

6.3 Reference to Other Sections

Other Sections: See Section 8 for personal protection equipment and Section 13 for disposal methods.

Section 7: Handling and Storage

7.1 Handling Precautions

Handling: Ensure adequate ventilation. Wear personal protective equipment/face protection. Use spark-proof tools and explosion-proof equipment. Keep away from open flames, hot surfaces, and sources of ignition. Avoid contact with skin, eyes, or clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid ingestion and inhalation. Take precautionary measures against static discharge.

7.2 Storage Conditions

Storage: Store in a dry, cool, and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks, and flame. Store in a flammable area. Keep container tightly closed in a dry and well-ventilated place. Incompatible materials include strong oxidizing agents, strong acids, strong bases, strong reducing agents, and other reactive substances.

Section 8: Exposure Controls/Personal Protection

8.1 Control Parameters

Exposure Limits: No occupational exposure limits established by regional regulatory authorities.

8.2 Exposure Controls

Engineering Measures: Ensure adequate ventilation, especially in confined areas.

8.3 Personal Protective Equipment

Respiratory Protection: Required when dusts are present. Use filtering respiratory protection (e.g., NIOSH-approved N95 mask).

Eye/face Protection: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). Safety glasses.

Hand Protection: Use gloves made of nitrile rubber. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands after handling.

Section 9: Physical and Chemical Properties

Appearance: Varies based on molecular weight (liquid or solid)

Color: Colorless

Odor: No data available

Melting Point/Freezing Point: Varies based on molecular weight

Boiling Point/Boiling Range: >300°C (Decomposition)

Flash Point: No data available

Autoignition Temperature: No data available

Decomposition Temperature: >300°C

pH: Not applicable

Viscosity: Varies based on molecular weight

Water Solubility: Highly soluble in water

Partition Coefficient (n-octanol/water): No data available

Vapor Pressure: <0.01 hPa at 20°C

Density: 1.128 g/mL

Relative Density: No data available

Relative Vapor Density: No data available**Particle Characteristics**: No data available

Explosive Properties: None

Oxidizing Properties: None

Section 10: Stability and Reactivity

10.1 Reactivity

Reactivity: No data available

10.2 Chemical Stability

Chemical Stability: The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of Hazardous Reactions

Violent Reactions Possible with: Strong oxidizing agents

10.4 Conditions to Avoid

Conditions to Avoid: No information available

10.5 Incompatible Materials

Incompatible Materials: Strong oxidizing agents, strong acids, strong bases, strong reducing agents

10.6 Hazardous Decomposition Products

Hazardous Decomposition Products: In the event of fire, see Section 5.

Section 11: Toxicological Information

11.1 Information on Toxicological Effects

- **Acute Toxicity**:
- LD50 Oral - Rat: >5,000 mg/kg
- Inhalation: No data available
- Dermal: No data available
- **Skin Corrosion/Irritation**:
- Skin - Rabbit: No skin irritation (OECD Test Guideline 404)
- **Serious Eye Damage/Eye Irritation**:
- Eyes - Rabbit: No eye irritation (OECD Test Guideline 405)
- **Respiratory or Skin Sensitization**:
- Guinea pig: Did not cause sensitization (OECD Test Guideline 406)

- **Germ Cell Mutagenicity**:
- Negative in Ames test and gene mutation test (OECD Test Guidelines 471 and 476)
- **Carcinogenicity**: No data available
- **Reproductive Toxicity**: No data available
- **Specific Target Organ Toxicity - Single Exposure**: No data available
- **Specific Target Organ Toxicity - Repeated Exposure**: No data available
- **Aspiration Hazard**: No data available