

Material Safety Data Sheet (MSDS)

Product Name: PEG 400

MSDS Generate Date: 20-05-2017

Revision Date: 30-12-2024

Supplier:

Rawpharma Biz Pvt Ltd

1101- City Centre 2,

Science City Road,

Sola Ahmedabad Gujarat,

India - 380060.

Contact No.: +91 97272 88479

Email: info@rawpharmabiz.com

Website: www.rawpharmabiz.com

1. Identification of the Substance and Company

Product Name: PEG 400

Chemical Name: Polyethylene Glycol 400

Synonyms: Macrogol 400, Polyoxyethylene Glycol 400

CAS Number: 25322-68-3

EC Number: 500-038-2

Chemical Formula: $\text{H}(\text{OCH}_2\text{CH}_2)_n\text{OH}$

Chemical Nature: Polyether Compound

Recommended Use:

PEG 400 is widely used as a pharmaceutical excipient, solvent, plasticizer, lubricant, humectant, dispersing agent, cosmetic ingredient, food additive (where permitted), and in industrial formulations.

2. Hazard Identification

GHS Classification: PEG 400 is generally not classified as hazardous according to the Globally Harmonized System (GHS) under normal conditions of use.

Potential Health Effects:

Inhalation: Low volatility. Heated vapors or mist may cause mild irritation of the respiratory tract.

Skin Contact: Generally non-irritating. Prolonged or repeated exposure may cause mild skin irritation in sensitive individuals.

Eye Contact: Direct contact may cause temporary irritation, redness, or watering.

Ingestion: Low acute toxicity. Large quantities may produce gastrointestinal discomfort, nausea, or diarrhea.

Environmental Hazards: Not expected to present significant environmental hazards under normal conditions. Avoid uncontrolled release into water bodies.

Precautionary Statements:

- Avoid unnecessary contact with eyes.
- Avoid prolonged skin exposure.
- Avoid breathing heated mist or vapors.
- Wash hands after handling.
- Keep containers tightly closed.
- Store in a cool and dry place.

3. Composition / Information on Ingredients

PEG 400 consists predominantly of polyethylene glycol polymers with an average molecular weight of approximately 380–420. It is manufactured by the controlled polymerization of ethylene oxide and contains hydroxyl-terminated polyether chains. The product is supplied as a highly purified pharmaceutical or industrial grade depending on specification. No hazardous stabilizers or additives are intentionally incorporated unless specifically mentioned in the product specification.

4. First Aid Measures

Inhalation: Move the affected person to fresh air. If respiratory irritation persists, obtain medical attention.

Skin Contact: Wash thoroughly with soap and water. Remove contaminated clothing if necessary.

Eye Contact: Flush eyes immediately with clean water for at least 15 minutes. Remove contact lenses if present. Seek medical attention if irritation persists.

Ingestion: Rinse mouth thoroughly with water. Drink water if conscious. Do not induce vomiting unless directed by medical personnel. Seek medical attention if large quantities have been ingested.

Most Important Symptoms:

- Mild eye irritation
- Mild skin irritation
- Respiratory irritation from heated mist
- Gastrointestinal discomfort after excessive ingestion

5. Fire Fighting Measures

Suitable Extinguishing Media: Water spray, Dry chemical powder, Carbon dioxide (CO₂), Alcohol-resistant foam.

Unsuitable Extinguishing Media: Do not use a direct high-pressure water jet on burning liquid.

Fire Hazards: Combustible at elevated temperatures. Burning may generate irritating fumes.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, aldehydes, and other organic decomposition products.

Protective Equipment: Firefighters should wear self-contained breathing apparatus (SCBA) and full protective clothing.

6. Accidental Release Measures

Personal Precautions:

- Avoid contact with eyes.
- Wear appropriate personal protective equipment.
- Clean spills promptly because surfaces become slippery.
- Ensure adequate ventilation.

Environmental Precautions: Prevent large quantities from entering drains, sewers, or natural waterways.

Cleanup Methods: Contain the spill with sand, vermiculite, or other inert absorbent material. Collect into suitable containers for disposal. Wash contaminated surfaces thoroughly with water to eliminate slip hazards.

7. Handling and Storage

Handling

- Handle using good industrial hygiene practices.
- Avoid unnecessary skin and eye contact.

- Avoid generating heated vapors or mist.
- Keep containers tightly closed when not in use.

Storage

Store in tightly sealed original containers in a cool, dry, and well-ventilated location.

Protect from excessive heat, moisture, contamination, and strong oxidizing agents.

Recommended storage temperature is generally 15°C–30°C.

8. Exposure Controls / Personal Protection

- **Engineering Controls:** Provide adequate ventilation. Local exhaust ventilation is recommended where heated vapors or mist may be generated.

Personal Protective Equipment:

- **Respiratory Protection:** Normally not required. Use suitable respiratory protection where mist formation occurs.
- **Eye Protection:** Safety glasses or chemical splash goggles.
- **Hand Protection:** Chemical-resistant protective gloves.
- **Skin Protection:** Protective clothing suitable for routine industrial handling.

9. Physical and Chemical Properties

Appearance: Clear, colorless, slightly viscous liquid

Odor: Practically odorless

Physical State: Liquid

pH: Approximately 4.5–7.5 (5% aqueous solution)

Specific Gravity: Approximately 1.12–1.13 at 25°C

Density: Approximately 1.125 g/cm³

Solubility: Completely miscible with water, alcohol, acetone, and many organic solvents

Viscosity: Approximately 85–105 cP at 25°C

Boiling Point: Greater than 250°C

Flash Point: Approximately 250°C (Closed Cup)

Melting Point: Below room temperature

Auto-Ignition Temperature: Approximately 320°C

Explosive Properties: Not explosive

Oxidizing Properties: None known

Vapor Pressure: Very low

Vapor Density: Not determined

10. Stability and Reactivity

Reactivity: Stable under recommended storage and handling conditions.

Chemical Stability: Chemically stable under normal temperatures and pressures.

Conditions to Avoid: Excessive heat, Open flames, Strong oxidizing agents, Prolonged exposure to air at elevated temperatures.

Incompatible Materials: Strong oxidizing agents, strong acids, and strong bases.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, aldehydes, ethers, and irritating organic fumes.

11. Toxicological Information

Acute Toxicity: Low acute toxicity under normal conditions of use.

Skin Irritation: May cause mild irritation after prolonged exposure.

Eye Irritation: May cause temporary irritation.

Respiratory Effects: Heated mist may cause mild respiratory irritation.

Sensitization: Not expected to cause skin sensitization.

Carcinogenicity: No known carcinogenic effects.

Mutagenicity: No known mutagenic effects.

Reproductive Toxicity: No known reproductive toxicity under intended conditions of use.

12. Ecological Information

Ecotoxicity: Low toxicity to aquatic organisms is expected.

Persistence and Degradability: Readily biodegradable under normal environmental conditions.

Bioaccumulative Potential: Not expected to bioaccumulate significantly.

Mobility: Highly soluble in water and mobile in aquatic environments.

Environmental Precautions: Prevent unnecessary release into drains, rivers, lakes, and groundwater.

13. Disposal Considerations

Dispose of unused product, contaminated absorbents, and packaging in accordance with applicable local, regional, and national regulations.

Do not discharge large quantities into drains or natural waterways.

Empty containers should be cleaned before recycling or disposal through an approved waste management facility.

14. Transport Information

PEG 400 is generally not classified as dangerous goods under ADR/RID, IMDG, or IATA regulations when transported in its standard commercial form.

The product should be transported in clean, tightly sealed containers to prevent leakage, contamination, moisture ingress, and deterioration of product quality.

UN Number: Not regulated.

UN Proper Shipping Name: Not regulated.

Transport Hazard Class: Not regulated.

Packing Group: Not applicable.

Environmental Hazard: Not classified as environmentally hazardous for transport.

Marine Pollutant: No.

Road Transport (ADR/RID): Transport in sealed HDPE drums, MS drums with suitable lining, IBC containers, or approved containers. Protect containers from excessive heat, contamination, moisture, and physical damage. Secure cargo adequately during transportation.

Sea Transport (IMDG): PEG 400 is not normally regulated as dangerous goods under the IMDG Code. Keep containers tightly closed and protect from seawater, direct sunlight,

excessive temperatures, and contamination. Ensure cargo is properly secured throughout shipment.

Air Transport (IATA): Generally not classified as dangerous goods for air transport. Use leak-proof packaging suitable for air freight and protect containers from pressure variations and physical damage.

Special Transport Precautions:

- Keep containers tightly sealed during transportation.
- Protect from direct sunlight and excessive heat.
- Prevent contamination with incompatible materials.
- Avoid physical damage to containers.
- Secure cargo to prevent shifting during transit.
- Inspect containers before dispatch.
- Clean spills immediately as the liquid may create slippery surfaces.
- Transport only in clean and approved containers.
- Do not transport leaking or damaged packages.
- Follow all applicable local, national, and international transportation regulations.

Transport in Bulk According to MARPOL Annex II and IBC Code: Bulk transportation should be carried out only in approved containers or tanks suitable for polyethylene glycol products and in accordance with applicable maritime regulations.

Emergency Transport Information: In the event of accidental leakage during transport, isolate the affected area and eliminate slip hazards. Prevent entry into drains and waterways. Absorb the spilled material using sand, vermiculite, or other inert absorbent material and transfer to suitable containers for disposal. Personnel performing cleanup should wear protective gloves, eye protection, and appropriate protective clothing.

15. Regulatory Information

- PEG 400 should be handled in accordance with applicable occupational safety, pharmaceutical, cosmetic, food, environmental, and transportation regulations.
- When supplied as pharmaceutical grade, the product should comply with the relevant requirements of the applicable pharmacopoeia, such as IP, BP, USP, or Ph. Eur., where specified.

16. Other Information

The information contained in this Material Safety Data Sheet is based on current knowledge regarding PEG 400 and is intended to provide guidance for its safe handling, storage, transportation, and disposal.

Product characteristics may vary slightly depending on manufacturing process and grade. Users should consult the applicable Product Specification and Certificate of Analysis before use.

This MSDS does not constitute a warranty of product specifications or suitability for any particular purpose. Users are responsible for ensuring compliance with applicable local, national, and international regulations.

- **MSDS Generate Date:** 20-05-2017
- **Revision Date:** 30-12-2024
- **Website:** www.rawpharmabiz.com
- MSDS are based on the manufacturer's provided information.