SAFETY DATA SHEET

POLYETHYLENE GLYCOL (PEG 200/400/600/4000/6000)

CAS No.: 25322-68-3 (general CAS for Polyethylene Glycol polymer; individual molecular-weight grades e.g. PEG 400, PEG 4000 may carry distinct CAS numbers under the same polymer family)

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

POLYETHYLENE GLYCOL (PEG 200/400/600/4000/6000)
PEG; Macrogol; Polyethylene oxide (low MW grades)

CAS: 25322-68-3 (general CAS for Polyethylene Glycol polymer; individual molecular-weight grades e.g. PEG 400, PEG 4000 may carry distinct CAS numbers under the same polymer family)

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Textile lubricant/softener and dye-carrier auxiliary, cosmetic and pharmaceutical excipient, industrial lubricant, mould-release and anti-static agent, plasticizer, humectant. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3. Pharmaceutical/food-grade end use requires separately certified material, not this industrial grade.

Supplier's details

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Polyethylene glycol (all listed molecular-weight grades) does not meet the classification criteria for any GHS hazard class based on available data; it is considered non-hazardous under standard GHS criteria.

Not classified	Does not meet GHS classification criteria for physical, health or environmental hazards

GHS label elements, including precautionary statements

GHS: No pictogram, signal word or hazard statement required.

Hazard statements

None assigned. Not a hazardous substance or mixture under GHS criteria.

Precautionary statements

P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/eye protection when handling molten (high-MW) grades.
P332+P313: If skin irritation occurs, get medical advice/attention.
P501: Dispose of contents/container in accordance with local/regional/national regulations.

Other hazards which do not result in classification

High molecular weight grades (PEG 4000, PEG 6000) are supplied as waxy solids/flakes; molten product presents a thermal (burn) hazard on contact. Dust from solid grades may present a nuisance dust/combustible dust hazard in bulk handling.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Polyethylene Glycol – poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (H-(OCH_2CH_2)n-OH)

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 25322-68-3	Polyethylene Glycol (PEG) – Not classified	≥ 99.5%

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

In general no specific first aid procedure is required for this product; observe good hygiene practice. Showing this SDS to medical personnel is recommended if a reaction occurs.

By inhalation

If dust from solid grades is inhaled, remove to fresh air. Seek medical attention if discomfort persists.

By skin contact

Wash skin with plenty of water and soap. Molten product (high-MW grades) causes thermal burns – cool the affected area immediately with running water and seek medical attention.

By eye contact

Rinse eyes thoroughly with lukewarm water for several minutes, holding eyelids apart. Seek medical attention if irritation persists.

By ingestion/aspiration

Rinse mouth with water. Not expected to require specific treatment; if large quantities are ingested or discomfort occurs, seek medical advice.

Most important symptoms/effects, acute and delayed

No significant acute or delayed effects expected under normal use. Prolonged/repeated skin contact may cause mild, transient irritation in sensitive individuals.

Indication of immediate medical attention and special treatment needed, if necessary

Not relevant

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Water spray/fog, carbon dioxide (CO^2), dry chemical powder, foam
Unsuitable: None known

Specific hazards arising from the chemical

Combustible but does not readily ignite. Solid grades in fine powder/dust form may present a dust explosion hazard if dispersed in air near an ignition source. Combustion produces carbon monoxide and carbon dioxide.

Special protective actions for fire-fighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing in enclosed spaces. Cool fire-exposed containers with water spray.

Additional provisions

Contain fire-fighting water to prevent environmental discharge.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Spilled liquid grades are slippery – avoid slips and falls. Use personal protective equipment as per section 8. Ensure adequate ventilation.

For emergency responders

Wear appropriate protective equipment. Standard precautions sufficient given the low hazard profile.

Environmental precautions

Prevent large spillages from entering drains or watercourses. Not classified as an environmental hazard, but good practice should be followed to avoid oxygen demand in receiving waters.

Methods and materials for containment and cleaning up

Liquid grades: absorb with inert absorbent material (sand, vermiculite) and place in suitable containers. Solid grades: sweep/shovel up and collect for reuse or disposal. Wash residual area with water.

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use

Avoid unnecessary skin/eye contact. Provide adequate ventilation, particularly when handling molten high-MW grades or fine powders. Avoid generating dust.

B. Technical recommendations for the prevention of fires and explosions

Ground equipment when handling powdered grades to prevent static discharge. Avoid dust accumulation.

C. Technical recommendations on general occupational hygiene

Wash hands after handling. Avoid eating or drinking in work areas.

D. Technical recommendations to prevent environmental risks

Prevent spillage from entering drains or watercourses.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Minimum Temp.	5°C
Maximum Temp.	30°C (liquid grades); solid grades stable to higher ambient temperatures
Maximum time	24 Months (in sealed original containers)

B. General conditions for storage

Store in tightly closed containers/bags in a cool, dry, well-ventilated place away from strong oxidising agents. Low-MW liquid grades (PEG 200/400) are hygroscopic; keep containers closed to avoid moisture pick-up.

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

No specific occupational exposure limit has been established for polyethylene glycol under the Factories Act, 1948. Where relevant, treat particulates (dust from solid grades) not otherwise classified under a general nuisance dust limit (e.g. 10 mg/m^3 total dust, as a general guideline).

Identification	Occupational Exposure Limit Type	Value
Polyethylene Glycol CAS: 25322-68-3	No established OEL (substance-specific)	Apply general particulate-not-otherwise-classified limit for dust from solid grades

Appropriate engineering controls

General ventilation is normally sufficient. Use local exhaust ventilation when handling powdered grades or molten product to control dust/mist.

B. Respiratory protection

Not normally required. Use a dust mask (P1/P2) when handling powdered grades with inadequate ventilation.

C. Specific protection for the hands

General-purpose gloves recommended for prolonged contact; heat-resistant gloves for molten high-MW grades.

D. Eye and face protection

Safety glasses recommended when handling powder or molten material.

E. Bodily protection

Normal industrial work clothing; heat-resistant apron/clothing when handling molten product.

F. Additional emergency measures

Eyewash station recommended in the work area.

Environmental exposure controls

No special measures required beyond good housekeeping.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Liquid (PEG 200/400/600) or waxy solid/flake (PEG 4000/6000), grade dependent
Appearance	Clear viscous liquid (low MW) to white waxy solid (high MW)
Color	Colorless to slightly yellow
Odor	Odorless to faint characteristic odor
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	> 250°C (decomposes before boiling, grade dependent)
Vapour pressure at 20°C	Negligible (< 0.01 mmHg)
Evaporation rate at 20°C	Negligible
Product Description	
Density / Relative density at 20°C	1.11 – 1.21 g/cm³ (grade dependent)
Dynamic / Kinematic viscosity	~40 – 90 mPa·s (PEG 400 at 20°C, indicative); increases with molecular weight
Concentration	≥ 99.5% (typical commercial grade)
pH	5 – 7 (5% aqueous solution)
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	Log Pow < 0 (highly hydrophilic)
Solubility in water at 20°C	Fully miscible (low MW grades); readily soluble (high MW grades)
Decomposition temperature	> 250°C
Melting point/freezing point	PEG 200/400/600: below 0°C to +25°C; PEG 4000: 53–58°C; PEG 6000: 55–63°C (grade dependent)
Flammability	
Flash Point	> 200°C (Cleveland open cup, typical for liquid grades)
Flammability (solid, gas)	Not readily flammable (combustible solid for high-MW grades)
Autoignition temperature	≈ 350°C (typical)
Lower / Upper flammability limit	Not established
Particle Characteristics	
Median equivalent diameter	Not established (solid grades supplied as flake/powder)

** Not relevant due to the nature of the product, not providing information on the properties of its hazards.*

Other information

Explosive properties	Not explosive
Oxidising properties	Not oxidising
Corrosive to metals	Not corrosive
Heat of combustion	Not established
Surface tension at 20°C	~43 – 45 mN/m (typical for PEG 400 aqueous solution)
Refraction index	~1.46 – 1.47 (typical, liquid grades)

10. STABILITY AND REACTIVITY

Reactivity

No hazardous reactivity expected under normal conditions of use and storage.

Chemical stability

Chemically stable under recommended storage and handling conditions. Hygroscopic (low-MW grades); can slowly oxidise on prolonged exposure to air/heat/light.

Possibility of hazardous reactions

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Prolonged exposure may cause slow oxidation	Avoid excessive heat/open flame	Avoid prolonged exposure	Avoid moisture uptake (hygroscopic, low MW grades)

Incompatible materials

Strong Oxidising Agents	Strong Acids/Bases
Avoid contact – may react exothermically	Avoid contact

Hazardous decomposition products

Thermal decomposition (at high temperature) may produce carbon monoxide, carbon dioxide and trace aldehydes.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Polyethylene glycol has a well-documented low order of acute toxicity and is widely used as a pharmaceutical/cosmetic excipient at appropriate grades. This industrial grade should still be handled with standard industrial hygiene practice.

A. Ingestion (acute effect)

Low acute oral toxicity. Large doses may have a mild laxative effect.

B. Inhalation (acute effect)

Dust from solid grades may cause mild, transient irritation of the respiratory tract.

C. Contact with skin and eyes (acute effect)

Generally non-irritating to mildly irritating; molten product causes thermal burns.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)

Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data. IARC: Not listed.

E. Sensitizing effects

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure

Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure

Classification criteria are not met based on available data.

H. Aspiration hazard

Classification criteria are not met based on available data.

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Polyethylene Glycol CAS: 25322-68-3	LD50 oral: > 28,000 mg/kg (typical, literature range for PEG 400)	Rat
	LD50 dermal: > 20,000 mg/kg	Rabbit

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment.

Toxicity

Identification	Acute Toxicity	Species	Genus
Polyethylene Glycol CAS: 25322-68-3	LC50: > 1000 mg/L (96h, typical literature range)	Not specified	Fish
	EC50: > 1000 mg/L (48h)	Not specified	Crustacean (Daphnia)

Persistence and degradability

Low-molecular-weight grades are readily biodegradable; biodegradability decreases with increasing molecular weight.

Bioaccumulative potential

Low potential for bioaccumulation (low Log Pow, high water solubility).

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Low (highly water soluble)	Negligible	Expected to be mobile	Expected to be mobile

Results of PBT and vPvB assessment

Not classified as PBT or vPvB.

Other adverse effects

Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Dispose of via a licensed waste contractor in accordance with local regulations. Product is biodegradable and generally suitable for controlled disposal via effluent treatment where permitted by local water authorities; not a hazardous waste under standard classification. Empty containers should be drained and disposed of/recycled per local regulations.

Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023)

14.1 UN number	Not assigned
14.2 UN proper shipping name	Non-hazardous for transport
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22)

14.1 UN number	Not assigned
14.2 UN proper shipping name	Non-hazardous for transport
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	Not applicable
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024)

14.1 UN number	Not assigned
14.2 UN proper shipping name	Non-hazardous for transport
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Not applicable
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation

The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Food Safety and Standards Act, 2006 (applicable only to separately certified food/pharma grade material, not this industrial grade)

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

Not applicable – product is not classified as hazardous under GHS criteria; no hazard statements apply.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

Publicly available GHS classification references and standard industrial chemical data compilations for polyethylene glycol polymers (CAS 25322-68-3 family).

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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