

Material Safety Data Sheet (MSDS)

Product Name: Tween 80 BP/USP Grade

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Supplier:

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1. Identification of the Substance/Preparation and Company

- **Product identifier:** Tween 80 BP/USP Grade
- **Other names / Synonyms:** Polysorbate 80; Polyoxyethylene (20) sorbitan monooleate
- **Recommended use:** Emulsifier, solubilizer in pharmaceutical, cosmetic and food applications (subject to applicable regulations).
- **Restrictions on use:** For industrial / formulation use only. Not sold for injection unless pharmacopeial-grade & appropriate validations completed.

2. Hazard(s) identification

- **GHS classification:** Not classified as a physical or health hazard under typical commercial concentrations.
- **Label elements:** Not required for non-classified material.
- **Hazard summary:**
 - Generally considered low toxicity.

- Can cause mild skin or eye irritation in sensitive individuals.
- May cause gastrointestinal upset if ingested in large quantities.
- Not expected to be a respiratory sensitizer under normal handling.
- **Precautionary overview:** Avoid prolonged skin contact and eye contact. Use good industrial hygiene. Prevent release to environment where possible.

3. Composition / Information on ingredients

- **Substance / Mixture:** Substance (or formulation containing primarily Polysorbate 80).
- **Chemical name:** Polyoxyethylene (20) sorbitan monooleate
- **CAS number:** 9005-65-6 (commonly used CAS for Polysorbate 80)
- **EC / List numbers:** (if applicable) — refer to supplier certificate.
- **Purity / Impurities:** BP/USP grade — meets pharmacopoeial specifications. May contain minor amounts of free fatty acids, sorbitan esters, water.

4. First-aid measures

- **Inhalation:** Not expected to be hazardous by inhalation. If mist or vapour generated and irritation occurs, move person to fresh air. Seek medical attention if symptoms persist.
- **Skin contact:** Remove contaminated clothing. Wash skin with soap and water. If irritation develops or persists, seek medical attention.
- **Eye contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower lids. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.
- **Ingestion:** Rinse mouth. Do NOT induce vomiting unless instructed by medical personnel. Obtain medical advice if symptoms occur (nausea, vomiting, diarrhoea).
- **Notes to physician:** Treat symptomatically. No specific antidote.

5. Fire-fighting measures

- **Flammable properties:** Not classified as flammable. Product is a viscous liquid; in fire, may burn.
- **Suitable extinguishing media:** Water spray, foam, dry chemical, or CO₂. Use media appropriate for surrounding fire.

- **Unsuitable extinguishing media:** None specifically; avoid high pressure water jets that may spread burning material.
- **Specific hazards:** Combustion may produce carbon oxides, smoke and irritating vapours.
- **Protective equipment for firefighters:** Self-contained breathing apparatus (SCBA) and full turnout gear. Cool containers with water spray to avoid rupture.

6. Accidental release measures

- **Personal precautions:** Use appropriate PPE (gloves, safety goggles). Avoid contact with eyes and skin. Avoid breathing vapour/mist if generated.
- **Environmental precautions:** Prevent further leakage or spillage if safe to do so. Avoid release to drains, surface water or soil. Notify authorities if large quantities enter waterways.
- **Containment and cleanup:** Contain spill, collect with inert absorbent (sand, vermiculite) and place in suitable labelled containers for disposal. Wash area with water; prevent runoff to sewers. For large spills, use non-sparking tools and ventilate area.

7. Handling and storage

- **Handling:** Avoid prolonged skin contact and eye contact. Use in well-ventilated area. Use good personal hygiene: wash hands after handling, do not eat/drink/smoke in work area. Avoid generating aerosols.
- **Storage:** Store in tightly closed original containers in a cool, dry, well-ventilated place. Protect from freezing and direct sunlight. Recommended storage temperature per supplier (typically ambient). Keep away from strong oxidizers.
- **Packaging materials:** Store in stainless steel, polyethylene or other compatible containers as specified by supplier.

8. Exposure controls / Personal protection

- **Occupational exposure limits:** No specific regional occupational exposure limit widely established for Polysorbate 80. Follow local regulations and general dust/mist limits if aerosols are formed.
- **Engineering controls:** Local exhaust ventilation if vapours, mists or aerosols are generated. Use general dilution ventilation.
- **Personal protective equipment (PPE):**

- **Respiratory:** Not normally required. If aerosol/mist present use appropriate respirator (e.g., NIOSH-approved particulate filter) per risk assessment.
- **Hands:** Chemical-resistant gloves (nitrile, neoprene) for prolonged contact.
- **Eyes:** Safety goggles or face shield.
- **Skin/body:** Protective clothing and apron if risk of repeated/prolonged contact.
- **Hygiene measures:** Wash hands and exposed skin after use. Remove contaminated clothing and launder before reuse.

9. Physical and chemical properties

- **Appearance:** Viscous, pale yellow to amber liquid (may vary).
- **Odour:** Characteristic mild odour.
- **pH:** Typically ~6–8 (aqueous solution; depends on concentration).
- **Melting/freezing point:** Variable; may become more viscous or solidify at low temperatures.
- **Boiling point / range:** Decomposes on heating; no defined boiling point at ambient pressure.
- **Flash point:** Not classified as flammable; apparent flash point typically >200 °C (dependant on method).
- **Evaporation rate:** Low.
- **Flammability (solid, gas):** Not applicable (liquid, not readily flammable).
- **Vapour pressure:** Low.
- **Relative density / Specific gravity:** ~1.06 (approx.; depends on grade).
- **Solubility:** Miscible with water (forms micellar solutions), soluble in various organic solvents.
- **Viscosity:** Viscous liquid; viscosity depends on temperature.
- **Other information:** No known auto-ignition data for typical commercial product.

10. Stability and reactivity

- **Chemical stability:** Stable under recommended storage conditions.

- **Conditions to avoid:** Excessive heat, open flames, strong oxidizing conditions.
- **Materials to avoid:** Strong oxidizers (may cause exothermic reactions).
- **Hazardous decomposition products:** Combustion may generate carbon monoxide, carbon dioxide, smoke and irritating/ toxic fumes.
- **Hazardous polymerization:** Will not occur.

11. Toxicological information

- **Acute toxicity:** Low acute toxicity by oral, dermal or inhalation routes at typical exposure levels. LD₅₀ and specific data depend on test species and formulation — consult supplier toxicological datasheet for detailed numeric values.
- **Irritation:** May cause mild skin and eye irritation in sensitive individuals. Repeated or prolonged skin contact may cause defatting of skin.
- **Sensitization:** Not generally considered a skin sensitizer; however, individuals may develop sensitivity rarely.
- **Chronic effects / Carcinogenicity / Mutagenicity / Reproductive toxicity:** No human data indicating carcinogenic or mutagenic effects at normal exposure. No classification as carcinogen by major agencies for Polysorbate 80. For detailed toxicological endpoints consult supplier's toxicology dossier.
- **Route of exposure:** Skin contact, eye contact, ingestion (minor), inhalation of mist (unlikely under normal handling).

12. Ecological information

- **Ecotoxicity:** Biodegradable surfactant. Low to moderate toxicity to aquatic organisms; avoid discharge of large quantities into the environment. Specific ecotoxicity values vary with test organism and concentration.
- **Persistence and degradability:** Readily biodegradable under aerobic conditions but depends on environmental conditions.
- **Bioaccumulative potential:** Low potential for bioaccumulation.
- **Mobility in soil:** Likely mobile in aqueous systems; may adsorb to sediments/soil organic matter.
- **Notes:** Prevent large releases to the environment; follow local regulations for release and disposal.

13. Disposal considerations

- **Waste treatment methods:** Dispose of in accordance with local, regional, national and international regulations. Do not dispose into drains or watercourses. Small amounts can be neutralized and handled as industrial wastewater in accordance with local permits. Large quantities should be incinerated at approved facilities or sent to licensed waste contractors.
- **Container disposal:** Empty containers may retain product residues. Rinse container and dispose of in accordance with regulations. Do not puncture or incinerate unless permitted.

14. Transport information

General statement: Polysorbate 80 (Tween 80) is generally **not classified as a hazardous material** for transport under international transport regulations when shipped in its typical commercial form (viscous liquid, non-pressurized). However, classification may change depending on local regulations, formulation, concentration, or if contaminated with hazardous substances. Always verify with current local and international transport rules prior to shipment.

14.1 UN Number

- **UN Number:** Not assigned / Not applicable for typical Tween 80 commercial product (i.e., **no UN number**).

14.2 UN Proper Shipping Name

- **Proper shipping name:** Not regulated — use “Not regulated” or state chemical name “Polysorbate 80” on documentation when asked by carrier; follow carrier requirements.

14.3 Transport hazard class(es)

- **Class:** Not classified as dangerous for transport (no transport class).

14.4 Packing group

- **Packing group:** Not applicable (no packing group assigned).

14.5 Environmental hazards

- **Marine pollutant:** Generally **not classified** as a marine pollutant. For marine transport declarations, check specific carrier and flag-state rules; if the material is shipped in very large quantities consider environmental hazard assessment.

14.6 Special precautions for user / Transport advice

- **General handling for transport:**
 - Use leak-proof, suitably labelled containers.

- Secure containers to prevent tipping or damage.
- Keep away from strong oxidizers and ignition sources during transport.
- Protect from extreme temperatures: freezing may increase viscosity/solidify; heating may reduce viscosity and increase vapour pressure (still low).
- **Spill response during transport:** Use absorbents (inert) to contain spills. Prevent runoff to sewers and waterways. Notify local authorities if large release occurs.

14.7 Transport by road / rail (ADR / RID)

- **ADR / RID classification:** Not classified as dangerous for carriage by road/rail (subject to national interpretation). Use generic descriptions on transport documents and follow carrier requirements.

14.8 Transport by sea (IMDG)

- **IMDG:** Not subject to IMDG dangerous goods code in typical commercial form. If transported in large bulk and if regulatory thresholds exceeded, consult IMDG code and competent authority.

14.9 Transport by air (IATA / ICAO)

- **IATA / ICAO:** Generally **not regulated** as dangerous goods for air transport in standard commercial packaging. Always confirm with airline/carrier and IATA Dangerous Goods Regulations before shipment.

14.10 Bulk transport considerations (e.g., bulk tanks, ISO tanks)

- For bulk shipments, review vessel/tank compatibility (use stainless steel or compatible lined tanks). Ensure secure fittings, overpressure protection as required, and secondary containment where mandated by local law.

14.11 Documentation recommendations

- Suggested information to carry with shipments: product name (Polysorbate 80 / Tween 80), CAS number (9005-65-6), quantity, supplier emergency contact, statement "Not classified as dangerous goods under current transport regulations (verify local rules)." Include Safety Data Sheet and emergency contact number.

15. Regulatory information

- **Global / regional classifications:** Not classified as hazardous substance by major regulatory agencies in its pure commercial form (refer to local laws).

- **Labeling:** Comply with applicable national labeling requirements (e.g., local consumer, cosmetic, or pharmaceutical labelling if intended for those markets).
- **Other regulations:** May be subject to chemical inventories (e.g., AICS, EINECS, TSCA) — verify supplier declaration and local regulatory listings.

16. Other information

- **Disclaimer / limitation:** The information in this MSDS is believed to be accurate at the time of issue and is provided in good faith. It is intended only as a guide to safe handling, storage, transportation and disposal. Users must satisfy themselves as to the suitability and completeness of this information for their own particular use.
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- MSDS are based on the manufacturer's provided information.