

POLYSORBATE 85 (TWEEN 85)

Trioleate Oil Dispersant & Coupling Agent

OVERVIEW

Chemical Nature: Polyoxyethylene (20) Sorbitan Trioleate. A non-ionic surfactant consisting of sorbitan esterified with three oleic acid chains and ethoxylated.

Appearance: Amber oily liquid. (HLB Value: 11.0)

Primary Application (Industrial): Powerful Coupling Agent. Its unique intermediate HLB bridges the gap between oil and water phases. Solves separation issues in difficult formulations.

Key Function: Excellent lubricity and stability in mineral oils and solvents.

SPECIFICATIONS

Polysorbate 85 is typically used at moderate to high levels in formulations. Given its hydrophilic, non-ionic surfactant nature combined with a lipophilic tri-oleate tail, it ensures good solubility in aqueous phases while maintaining strong oil affinity.

Test Item	Unit	Min	Max
HLB Value	-	11.0	
Saponification Value	mg KOH/g	83	98
Hydroxyl Value	mg KOH/g	40	60
Acid Value	mg KOH/g	-	2
Moisture Content	%	-	3.0

MOLECULAR STRUCTURE & MECHANISM

- Hydrophilic Segment:** Polyoxyethylene chain introduced through ethylene oxide units (totaling approx. 20) attached to the sorbitan ring.
- Hydrophobic Moiety:** Three oleic acid residues (Tri-ester) esterified to the backbone.
- Amphiphilic Architecture:** The structure enables the molecule to position itself efficiently at oil-water interfaces. It works to reduce surface tension and stabilize emulsions effectively, leveraging its balance of hydrophilic chains and hydrophobic fatty acid tails.

KEY FEATURES

Superior Oil Dispersion

The Trioleate structure makes it exceptionally effective at penetrating and breaking apart oil layers, making it a top choice for industrial degreasers and spill remediation.

"Blooming" Effect (Cosmetics)

In bath oils and cleansers, Tween 85 creates a spontaneous, milky white emulsion ("bloom") upon contact with water, providing a visual cue of efficacy and a luxurious rinse-off feel.

Low-Foaming Profile

Generates significantly less foam than Tween 20 or 80 due to its triple fatty acid chain, ideal for high-agitation industrial processes.

High Solvent Compatibility

Excellent solubility in vegetable oils, mineral oils, and organic solvents, allowing it to be easily formulated into anhydrous (water-free) concentrates.

APPLICATIONS

- **Oil Spill Dispersants:** Used in environmental formulations to break down marine oil slicks into biodegradable droplets.
- **Cosmetic Cleansing Oils:** The primary ingredient in "wash-off" makeup removers. It dissolves waterproof makeup (due to high oil affinity) and then turns milky (emulsifies) when rinsed with water.
- **Textile & Leather:** Acts as a friction-reducing lubricant and antistatic agent for synthetic fibers.
- **Industrial Drilling Fluids:** Used in oil-based drilling muds to maintain viscosity and emulsion stability under pressure.

STORAGE & PACKAGING

Storage: Store in a cool, dry, and well-ventilated area, away from direct sunlight and sources of heat. Avoid contact with harmful or incompatible substances. Handle with care to prevent leakage.

Transportation: Transport as a general chemical product, following standard safety and handling procedures.

Package Options:

- 25 Kg / drum
- 200 Kg / drum
- 1000 Kg IBC tote