

## 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

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#### 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.

#### 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.

#### "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.

#### 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