

POLYSORBATE 80 (TWEEN 80)

E433 Food Grade O/W Emulsifier & Stabilizer

OVERVIEW

Chemical Nature: High-purity, non-ionic surfactant and emulsifier derived from polyethoxylated sorbitan and oleic acid.

Appearance: Yellow viscous liquid. (HLB Value: 15.0)

Primary Application (Food): Excellent O/W Stability. Provides superior stability in oil-in-water emulsions. Widely used in ice cream, pickles, and sauces to prevent separation and improve texture.

Origin: 100% Vegetable-based (non-animal).

SPECIFICATIONS

Polysorbate 80 is a hydrophilic surfactant with extensive ethoxylation, rendering it readily soluble in water. Its high HLB value makes it especially well-suited for emulsions with substantial water phases. It acts as a solubilizer for vitamins and flavors.

Test Item	Unit	Min	Max
HLB Value	-	15.0	
Saponification Value	mg KOH/g	45.0	55.0
Hydroxyl Value	mg KOH/g	65.0	80.0
Acid Value	mg KOH/g	-	2
Moisture Content	%	-	3
Ignition Residue	w%	-	0.25
Oxyethylene Content	w%	65.0	69.5
Arsenic (As)	mg/kg	-	3
Lead (Pb)	mg/kg	-	2

MOLECULAR STRUCTURE & MECHANISM

- Hydrophilic Segment:** Polyoxyethylene chain introduced by ethylene oxide units, ensuring excellent water affinity.
- Hydrophobic Moiety:** Oleic acid residue (unsaturated fatty acid) which provides lipophilicity and fluidity.
- Mechanism:** Powerful O/W Emulsifier. The amphiphilic configuration allows Polysorbate 80 to align perfectly at the oil-water interface, effectively reducing surface tension and stabilizing emulsion droplets.

KEY FEATURES

High HLB Stabilization (15.0)

With a high HLB value, it delivers superior oil-in-water emulsification, preventing separation in ice cream and sauces, ensuring a homogenous mixture.

100% Vegetable-Based

Derived exclusively from corn, palm, or olive sources. Guaranteed free from animal fats (tallow), making it suitable for vegetarian and Halal/Kosher diets.

Solubility Power

Excellent solubilizer for lipophilic ingredients. Easily disperses essential oils, vitamins, and flavors into water-based systems for clear, stable beverages.

Certified Purity

Fully complies with FDA, E433, USP, and FCC standards, ensuring safety for global food and pharmaceutical export.

APPLICATIONS

- **Ice Cream & Frozen Desserts:** Promotes dryness and shape retention. Slows down melting and ensures a smooth, creamy texture by preventing ice crystal formation.
- **Beverages & Functional Drinks:** Acts as a solubilizer for flavors and vitamins. Stabilizes foam in aerated drinks and prevents ring formation.
- **Sauces, Dressings & Margarine:** Prevents oil-water separation (syneresis). Maintains a homogenous consistency during storage.
- **Bakery & Confectionery:** Improves loaf volume and crumb structure. Prevents fat bloom in chocolate products.

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.

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