

POLYSORBATE 61 (TWEEN 61)

Low-EO Stearate Emulsifier

OVERVIEW

Chemical Nature: Specialized stearate surfactant with a shorter ethylene oxide chain (4 moles) than standard Tween 60.

Appearance: Waxy solid. (HLB Value: 9.6)

Primary Application (Cosmetics): Structural Body Builder. Unlike liquid polysorbates, its waxy nature makes it an excellent co-emulsifier and thickening agent, providing richness to creams.

Industrial Use: Effective stabilizer for industrial wax dispersions.

SPECIFICATIONS

Polysorbate 61 is generally presented as a waxy or semi-solid material. Its hydrophilic-lipophilic balance (HLB) is lower than other polysorbates with higher ethoxylation degrees, making it particularly useful for stabilizing oil-in-water systems with higher oil content.

Test Item	Unit	Min	Max
HLB Value	-	9.6	
Saponification Value	mg KOH/g	95	115
Hydroxyl Value	mg KOH/g	165	195
Acid Value	mg KOH/g	-	3
Moisture	%	-	3

MOLECULAR STRUCTURE & MECHANISM

- Hydrophilic Segment:** Polyoxyethylene chain introduced by ethoxylation (4 moles), providing limited water solubility.
- Hydrophobic Moiety:** Stearic acid chain derived from long-chain fatty acids, providing significant structural body.
- Mechanism:** Amphiphilic Positioning. This structure allows Polysorbate 61 to position itself effectively at the oil-water interface, significantly reducing surface tension and stabilizing emulsions.

KEY FEATURES

Intermediate HLB (9.6)

With an HLB of 9.6, it sits perfectly between oil-soluble Spans and water-soluble Tweens. This makes it a powerful "coupling agent" to stabilize complex oil-water interfaces.

Solid Waxy Structure

Being a solid at room temperature, it naturally builds viscosity and body in formulations, reducing the need for additional thickeners or hard waxes.

Water Resistance

Due to its lower ethylene oxide content (only 4 moles), it is less water-soluble than Tween 60, making it ideal for formulating water-resistant sunscreens.

Stearate Compatibility

Highly compatible with fatty alcohols and other stearate-based ingredients, ensuring smooth, glossy, and stable white emulsions.

APPLICATIONS

- **Cosmetics (Barrier Creams):** Used in heavy moisturizing creams and sunscreens to provide a protective, water-resistant barrier and increase viscosity.
- **Industrial Polishes:** Acts as an emulsifier in car waxes, furniture polishes, and leather dressings where a solid waxy residue is desirable.
- **Textile & Leather:** Used as a lubricant and softener in fiber processing.

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