

SORBITAN MONOPALMITATE (SPAN 40)

E495 Aeration & Structuring Agent

OVERVIEW

Chemical Nature: Non-ionic surfactant derived from sorbitan and palmitic acid.

Appearance: Solid waxy surfactant. (HLB Value: 6.7)

Primary Application (Bakery): Aeration & Structuring. Stabilizes air bubbles to maximize volume in sponge cakes. Unlike liquid Spans, it provides structural integrity.

Cosmetics Use: Gives 'body' and richness to creams and lotions.

SPECIFICATIONS

Sorbitan monopalmitate typically appears as a waxy, granular solid at room temperature. It functions as a W/O emulsifier, aiding in fat dispersion and increasing emulsion stability.

Test Item	Unit	Min	Max
HLB Value	-	6.7	
Saponification Value	mg KOH/g	140	155
Hydroxyl Value	mg KOH/g	270	305
Acid Value	mg KOH/g	-	7
Moisture	%	-	1.5
Saturated Fatty Acid	%	63	71
Polyunsaturated Fatty Acid	%	33	38
Sulfated Ash	%	-	0.5
Phosphorus	mg/kg	-	3
Lead (Pb)	mg/kg	-	2

MOLECULAR STRUCTURE & MECHANISM

- Hydrophilic Backbone:** Sorbitan backbone (formed by dehydrated sorbitol).
- Hydrophobic Moiety:** Palmitic acid chain (C16 fatty acid) esterified to sorbitan.

- Mechanism:** Amphiphilic Arrangement. Enables the molecule to align at oil-water interfaces, effectively reducing interfacial tension. Typically adept at stabilizing W/O (Water-in-Oil) emulsion types.

KEY FEATURES

Superior Aeration (Volume Boost)

Chemically optimized to stabilize air-in-oil/water interfaces. Promotes rapid aeration in cake batters, ensuring maximum volume and fluffiness.

Solid Structuring Agent

As a solid palmitate, it builds internal structure within formulations. Prevents oil separation in spreads and adds desirable thickness to cosmetics.

Palm-Based Origin

Derived from Palmitic Acid (Palm Oil), offering a vegetable-based, vegan-friendly alternative to animal-derived texturizers.

HLB 6.7 Co-Emulsifier

With an intermediate-low HLB, it pairs perfectly with Polysorbate 40 (Tween 40) to form highly stable emulsions that resist temperature fluctuations.

APPLICATIONS

- Bakery (Sponge Cakes):** A key aerating agent that helps incorporate air into batters, resulting in cakes with higher volume, finer crumb, and softer texture.
- Whipped Toppings:** Stabilizes the foam structure in non-dairy whipped creams, preventing collapse and weeping (syneresis).
- Cosmetics & Skincare:** Functions as a thickener and co-emulsifier in creams, adding viscosity and a rich, smooth feel without using heavy waxes.
- Yeast Manufacturing:** Used alongside other emulsifiers to protect yeast cells and improve dispersibility.

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