

BUTTER SUNSCREENS

High performance, versatile SPF technology in a smooth, creamy butter

In addition to its aesthetic appeal, Hallstar's anhydrous butter-based sunscreen technology offers many performance, formulation, and processing advantages: inherent water resistance, versatility, stability, and the simplicity of fewer required ingredients. Since the technology is water-free, there are no pH issues, and different types of natural butters and oils can be used without requiring a preservative.

A PLATFORM TECHNOLOGY

This high-performance SPF technology is based on patent coated, micronized titanium dioxide inorganic sunscreen (HallBrite® EZ-FLO TDx) combined with the Olivem® 900 structuring agent and Biochemica® butter and emollient oil. The technology delivers improved *in vitro* skin care protection and water barrier properties, and contains all globally acceptable ingredients. The technology is flexible and can be customized to meet specific performance needs and EU, US and Asian SPF and PFA requirements.



Formula #	Anhydrous Butter-based Sunscreen Composition Tested	SPF*	Improvement vs. Control %
JZ11-42A (Control)	No Olivem® 900 Structuring Agent, with HallBrite® EZ-FLO TDx containing Micronized TiO2 (Control)	30	-
JZ11-42B	Olivem® 900 Structuring Agent, with Commercial Coated Micronized Powder TiO2	29	(-3)
JZ11-30B	Beeswax Structuring Agent, with HallBrite® EZ-FLO TDx containing Micronized TiO2	37	20
JZ10-159B	Olivem® 900 Structuring Agent, with HallBrite® EZ-FLO TDx containing Micronized TiO2	40	33

Test Method: OTC Monograph (dose = 1.3 mg/cm²).

FILM BARRIER AND MICROSCOPY STUDIES

Lack of penetration of FD&C blue #1 water soluble dye through the film and absence of blue stain on skin after application of the formulation with Olivem® 900 demonstrate superior barrier function.



More uniform particle size distribution means enhanced skin coverage for improved SPF and better butter physical stability.



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HIGH-PERFORMANCE MATRIX

Five Hallstar products were used for this model formulation; SPF 40 JZ10-159B and broad spectrum were achieved.

Ingredients INN (USAN)	Trade Name	Weight % (as is)	Function
Cannabis Sativa Seed Oil (Hydrogenated Vegetable Oil)	Biochemica® Hemp Butter	27.00	Emollient
Prunus Amygdalus Dulcis (Sweet Almond) Oil, Hydrogenated Vegetable Oil, Citrus Aurantiifolia (Lime) Peel Oil	Biochemica® Lime Butter	18.00	Emollient
Polyhydroxystearic Acid	Biochemica® Grapeseed Oil	0.20	Dispersing Agent
Vitis Vinifera (Grape) Seed Oil	Biochemica® Grapeseed Butter	20.30	Emollient
Butyloctyl Salicylate, Nano-Titanium Dioxide (Nano), Tricetareth-4 Phosphate, Dimethicone Crospolymer & Silica	HallBrite® EZ-FLO TDX	20.00	UV Sunscreen & Carrier System
Sorbitan Olivatate or Beeswax	Olivem® 900	4.50	Structuring Agent & Stabilizer
Silica (spherical, 12 µm)		10.00	De-oiling Agent

IN-USE PERFORMANCE

Composition with Olivem® 900 performed better on all attributes



■ Olivem® 900 ■ No structuring agent

Note: Lower number = better performance

Test method: Blind, paired comparison by comparison (PCBT) test, n = 5 panelists.

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