



Formulator Report: Floralipids® Moringa Butter



About Moringa Butter:

Moringa Butter provides exceptional skin hydration and enhances barrier recovery, with a rich, non-greasy skin feel, a matte appearance, and low odor and color. Unlike most butters, Moringa Butter is a product of interesterification which avoids trans-fat production. Floralipids Moringa Butter [INCI Moringa Oil/Hydrogenated Moringa Oil Esters] is created from the *Moringa oleifera*- “the miracle tree,” whose seed oil has the highest oxidative stability of any commercially available vegetable oil.

Clinical Study Facts¹:

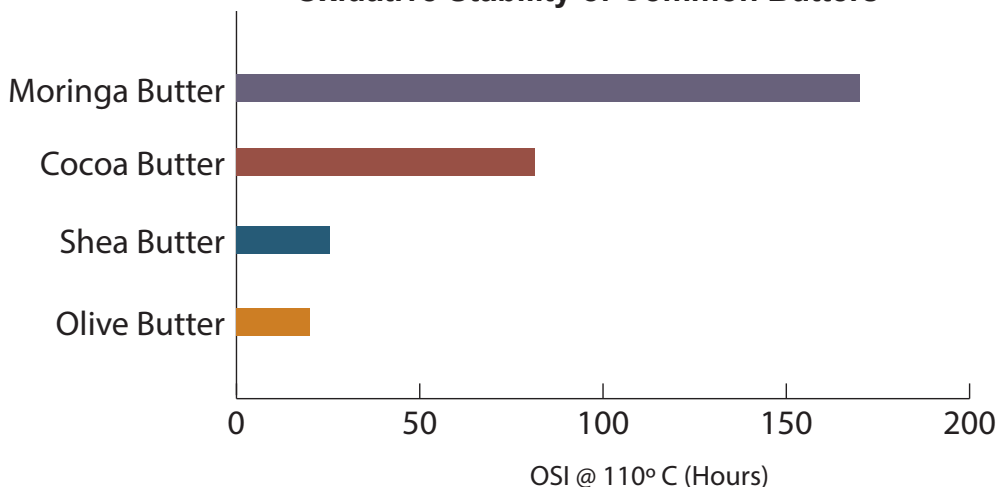
In double-blind, vehicle controlled clinical studies, Moringa Butter:

- increased skin hydration better than shea, cocoa, or olive butter (Figure 1)
- increased skin hydration twice as efficiently as shea butter (Figure 2)
- increased skin barrier recovery similarly to petrolatum (Figure 3)
- was preferred by consumers over shea butter (Figures 4 and 5)

Formulation Benefits:

- Provides extended shelf life due to its oxidative stability² (see graph on right)
- Is compatible with:
 - Wax esters
 - Glycerides
 - Poly alpha olefins
 - Fatty acids
 - Silicones
 - Silicone powders
- Results in cushiony, silky, non-greasy³ feel on skin
- Results in a matte appearance on skin
- Is able to make a stick product that has appropriate strength⁴

Oxidative Stability of Common Butters



Stick Products	Avg. Break Strength (kg)
Moringa Butter Lip Balm	0.42
Shea Butter Lip Balm	0.18
Marketed Lip Balm	0.39

1. Final Reports available upon request. Figures can be found on the next two pages of this document.
 2. Method: AOCS Cd 12b-92 @ 110° C. Shea butter, cocoa butter and olive butter were sampled from various suppliers and results were averaged.
 3. Moringa Butter is less greasy than shea butter. See Technical Report: Floralipids Moringa Butter for additional information.
 4. See Technical Report: Floralipids Moringa for additional information (e.g. formulas, methodology). Shea butter is too soft to form a usable stick.

Figures⁵:

Increased Skin Hydration with Moringa Butter versus Other Butters

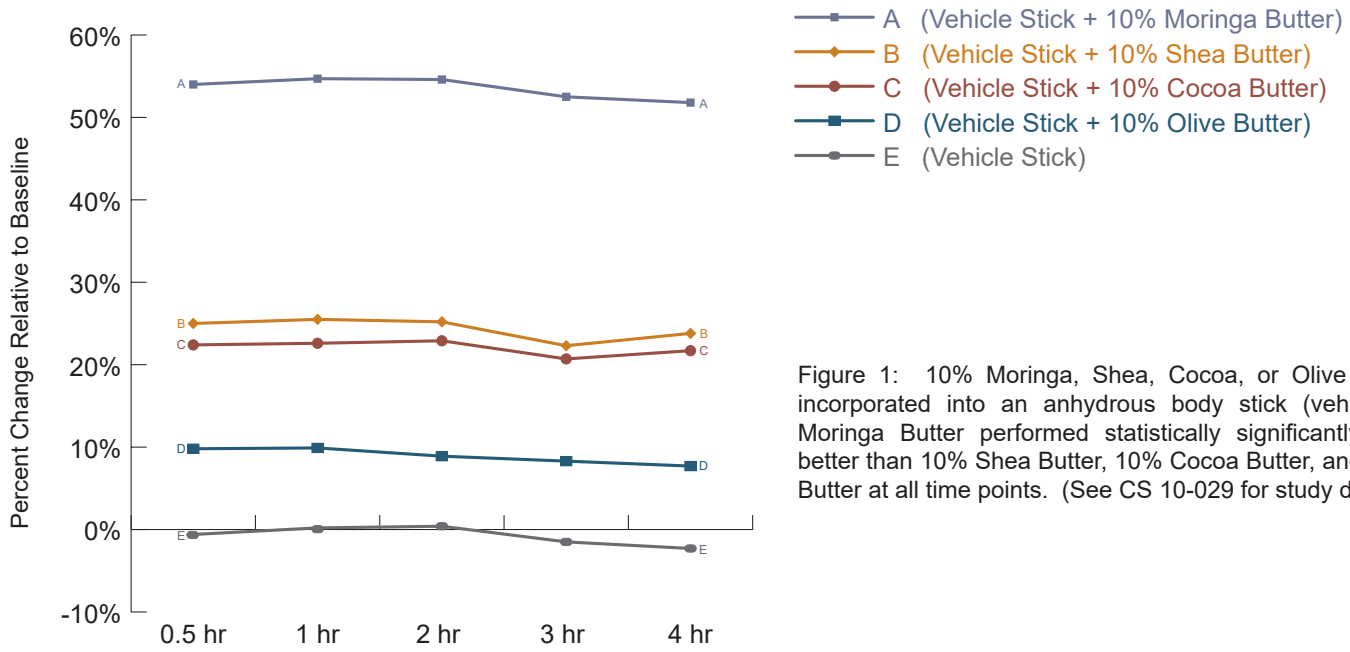


Figure 1: 10% Moringa, Shea, Cocoa, or Olive Butter was incorporated into an anhydrous body stick (vehicle). 10% Moringa Butter performed statistically significantly ($p < 0.001$) better than 10% Shea Butter, 10% Cocoa Butter, and 10% Olive Butter at all time points. (See CS 10-029 for study details.)

Increased Skin Hydration with Moringa Butter versus Shea Butter

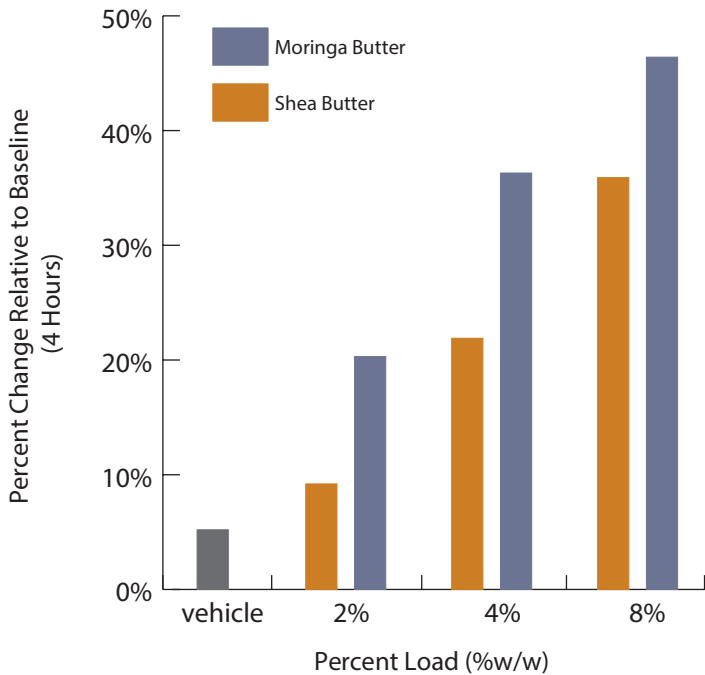


Figure 2: 2%, 4%, or 8% Moringa Butter or Shea Butter was incorporated into a lotion (vehicle). 2%, 4%, and 8% Moringa Butter performed statistically significantly ($p < 0.001$) better than the vehicle. 4% and 8% Shea Butter performed statistically significantly ($p < 0.001$) better than the vehicle. (See CS 12-039 for study details.)

Enhanced Barrier Recovery with Moringa Butter

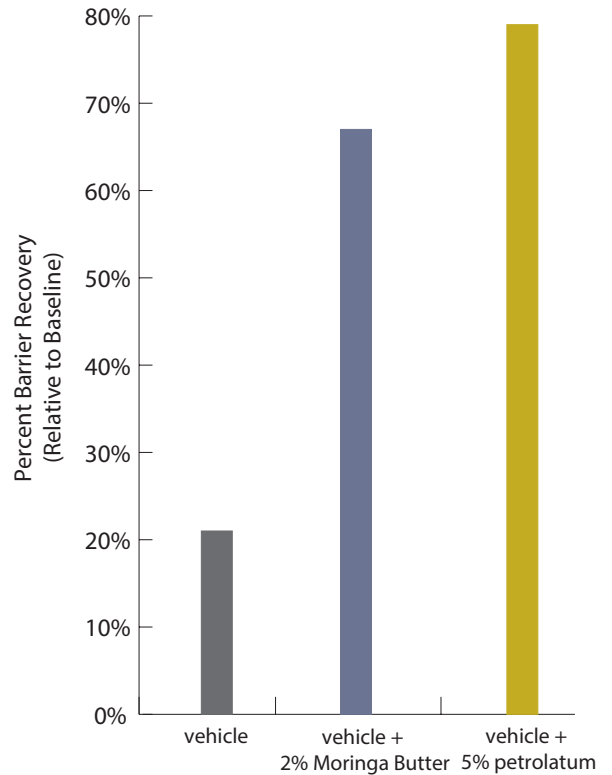


Figure 3: 2% Moringa Butter or 5% petrolatum (positive control) was incorporated into a lotion (vehicle). Skin was exposed to a 0.3% solution (%w/w) of SLS for approximately 18 hours under occlusion. The results show that after two applications (two hours post insult), the lotion containing 2% Moringa Butter resulted in 67% barrier recovery compared to the vehicle lotion which only resulted in 21% barrier recovery, $p < 0.05$.

⁵. All studies were run double-blind and randomized.

Over 80% of Consumers Preferred Moringa Butter Over Shea Butter in a Stick

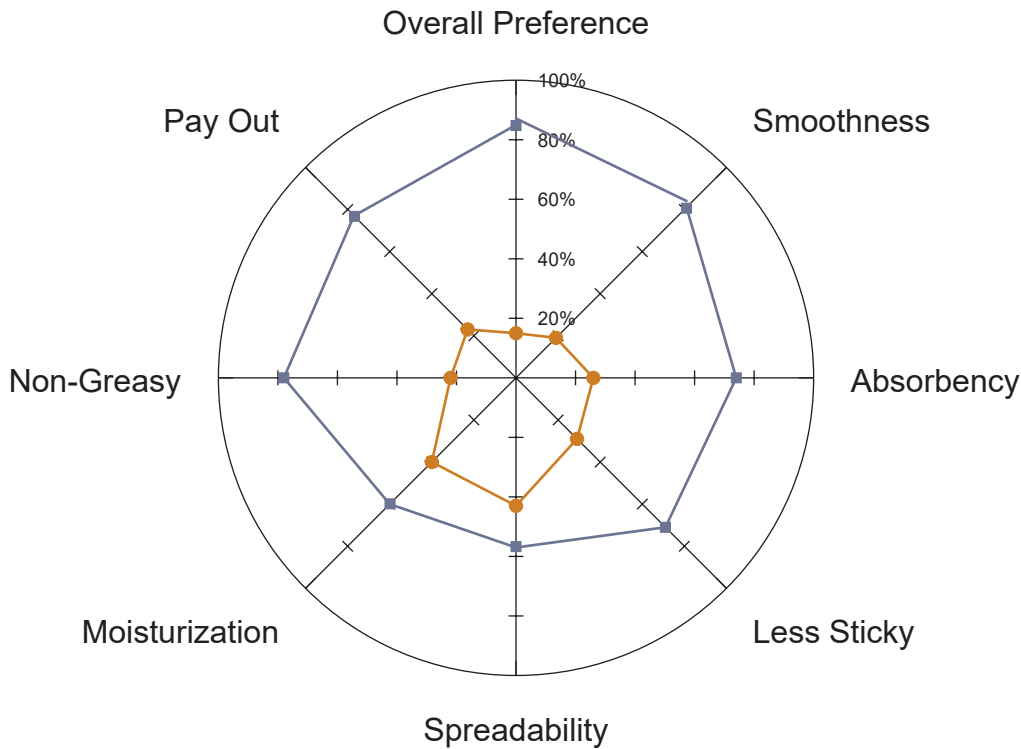
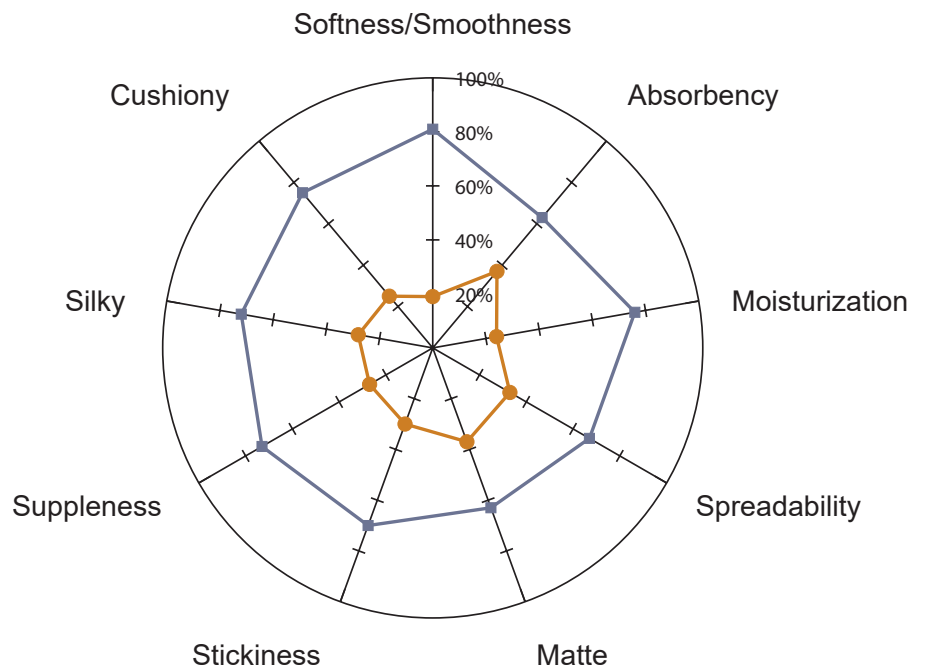


Figure 4: 10% Moringa Butter or Shea Butter was incorporated into an anhydrous body stick (vehicle). Consumers stated an overall preference for the anhydrous body stick with 10% Moringa Butter over 10% Shea Butter 85% of the time. (See CS 11-032 for study details.)

—■— 10% Moringa Butter
—●— 10% Shea Butter

The Majority of Consumers Preferred Moringa Butter Over Shea Butter in a Body Cream

Figure 5: 8% Moringa Butter or Shea Butter was incorporated into a body cream. 8% Moringa Butter was preferred over 8% Shea Butter by a majority of consumers. (See CS 12-041 for study details.)



—■— 8% Moringa Butter
—●— 8% Shea Butter

Formula: Moringa Butter Moisturizing Body Masque⁶

The following formula allows the formulator to vary sub-component phases that lend one or more aesthetic and performance characteristics. This chassis couples the wax-ester character of Floratech's wide range of naturally-derived ingredients with traditional glycerides, fatty acids, poly alpha olephins, silicones, and silicone powders. By varying these sub-component phases, the formulator can match marketing needs for natural content with specific performance points from silicones (slip), longevity of wear (poly alpha olephins), moisturization (glycerin and Floraesters K-100 Jojoba synergy), and matte 'finish' (Floralipids Moringa Butter).

Phase	Trade/Common Name	INCI Name	Manufacturer	%wt./wt.
A	Deionized Water	Water	-----	q.s.
	Versene [®] NA2 Crystals	Disodium EDTA	The Dow Chemical Co.	0.10
	Zemea [®] Propandiol	Propandiol	DuPont Company	4.00
	Glycerin, USP	Glycerin	The Dow Chemical Co.	1.50
	Aristoflex [®] AVC	Ammonium Acryloyldimethyltaurate / VP Copolymer	Clariant Corporation	0.50
B	Floralipids[®] Moringa Butter	Moringa Oil/Hydrogenated Moringa Oil Esters	Floratech	8.00
	Dow Corning [®] 2503 Cosmetic Wax	Stearyl Dimethicone	Dow Corning Corporation	1.50
	Performalene [®] 400 Polyethylene	Polyethylene	New Phase Technologies	1.00
	Jeesilc [®] DMC 19	PEG/PPG-18/18 Dimethicone	Jeen International Corp.	1.50
	Performacol [®] 425 Alcohol	C20-40 Alcohols	New Phase Technologies	1.00
	Lexemul [®] 561	Glyceryl Stearate (and) PEG-100 Stearate	Inolex Chemical Co.	2.50
	Palmitic Acid 95% FGK	Palmitic Acid	Acme Hardesty Co.	1.00
	Myristic Acid 98% FGK Flakes	Myristic Acid	Acme Hardesty Co.	1.00
	Crodocol [®] CS50	Cetearyl Alcohol	Croda, Inc.	2.50
	Floramac[®] 10	Ethyl Macadamiate (and) Tocopherol (and) Malic Acid	Floratech	3.00
	Floraesters[®] 30	Jojoba Esters (and) Tocopherol	Floratech	10.00
C	Floraesters[®] K-100 Jojoba	Hydrolyzed Jojoba Esters (and) Jojoba Esters (and) Water (Aqua)	Floratech	0.35
	Gransil [®] SiW-050	Isododecane (and) Dimethicone (and) Polysilicone-11 (and) Coco-Caprylate/Caprates (and) Water (and) Butylene Glycol (and) Decyl Glucoside	Grant Industries	5.00
D	Preservative ⁷	Preservative	-----	q.s.
	Fragrance ⁸	Fragrance	-----	q.s.
	Sepigel 305 [®]	Polyacrylamide (and) C13-14 Isoparaffin (and) Laureth-7	Seppic	1.00
TOTAL				100.00

Procedure:

- Combine all ingredients of Phase A, except Aristoflex AVC, at room temperature with moderate propeller agitation. Slowly add Aristoflex AVC heat to 80° C.
- Combine all ingredients of Phase B. Mix at 80° C until completely melted and uniform.
- Slowly add Phase B to Phase A with moderate propeller agitation at 80° C.
- Homogenize at 80° C.
- Remove from heat and cool to 65° C with moderate propeller agitation.
- Add Phase C and mix thoroughly until Gransil SiW-050 is dispersed completely.
- Cool to 45° C and add Phase D with moderate propeller agitation. Cool to room temperature.

Formula Properties:

Property	Result
pH	5.5 – 6.5
Viscosity	>125 kcP
Specific Gravity	0.97
Appearance	stiff cream

Ingredient Information

24/7 Online

iLabel[®]
www.floratech.com/info



Floralipids
Moringa Butter

⁶ INCI/trade names must be verified with each manufacturer.

⁷ Preservative: Jeecide[®] CAP-5 [INCI: Phenoxyethanol (and) Caprylyl Glycol (and) Potassium Sorbate (and) Water (and) Hexylene Glycol] supplied by Jeen International Corporation

⁸ Fragrance: Green Herbal ORC0801045 supplied by Orchidia Fragrances