



Castor Oil Derivative Solutions For Stick Formulations
Unique touchless solution concepts that outperform the ordinary.



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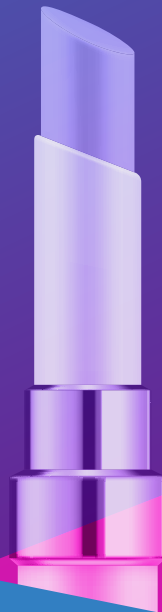
Many consumers are savvy shoppers and demand products to be effective and convenient for their on-the-go lifestyle. They also want ingredients that meet today's trends such as naturalness and biodegradability.

Castor oil is known for its high level of ricinoleic acid. Unlike some other natural components with other ingredients, ricinoleic acid has constant composition and uniformity. Its hydroxyl functionality and unsaturation make it uniquely versatile. Castor oil derivatives are, therefore, a good choice for formulations that require unique touchless solutions. They provide increased emolliency, emulsification, formulation rigidity, and naturalness.

Formulators are challenged with using natural ingredients while attaining improved properties and performance especially in stick formulations. Vertellus developed unique solutions with our castor derivatives in our stick concepts. Our concepts demonstrate high transparency in a high-load mineral UV filter stick, high foam in a stick cleanser, and excellent stick integrity v. some common industry materials. Demo samples demonstrating the comparisons are available upon request.

- Biodegradable, but not rapid
- Rapidly Biodegradable





- Natural as defined by ISO 16128-1:2-16 and 16128-2:2017 (based on starting materials and method of calculation set forth), ECOCERT, and/or COSMOS cosmetics conformity



Lip Luxe Stick Balm

Formula #LCA1219191





A luxurious, easy application lip balm with no taste and long lasting emolliency. In comparison to a control with petrolatum, this stick has improved integrity and shine. It features Naturechem™ CR Emollient, Naturechem™ GMHS Emulsifier, Casid™ HSA Emulsifier, and Castorlatum™ Castor Oil.

Trade Name	INCI	W/W%	Supplier
Phase A			
 Naturechem CR Emollient	Cetyl Ricinoleate	5.0%	Vertellus
 Naturechem GMHS Emulsifier	Glyceryl Hydroxystearate	5.0%	Vertellus
	Euphorbia Cerifera (Candelilla) Wax	8.0%	Strahl & Pitsch
	Moringa Oil/Hydrogenated Moringa Oil Esters	15.0%	Floritech
 Casid HSA Emulsifier	Hydroxystearic Acid	6.0%	Vertellus
Phase B			
 Castorlatum Castor Oil	Ricinus Communis (Castor) Seed Oil (and) Hydrogenated Castor Oil	60.5%	Vertellus
	Tocopherol acetate	0.5%	DSM

Procedure:

1. Heat Phase A ingredients to 70°C with slow continuous mixing.
2. Mix until all waxes are completely melted, then add Phase B.
3. Mix until uniform and start to cool.
4. Dispense into stick components before solidification.






Low whitening mineral sunscreen stick with easy glide for application ease yet shows excellent stick integrity. Improved transparency v. stearic acid and beeswax control formulations. It features Castorwax™ MP-80 Hydrogenated Castor Oil, Casid™ HSA Emulsifier, Naturechem™ CR Emollient, and Casmate™ DCA Emollient.

Trade Name	INCI	W/W%	Supplier
Phase A			
 Castorwax MP-80 Hydrogenated Castor Oil	Hydrogenated Castor Oil	5.0%	Vertellus
 Casid HSA Emulsifier	Hydroxystearic Acid	6.0%	Vertellus
	Ozokerite	5.0%	Strahl & Pitsch
	Euphorbia Cerifera (Candelilla) Wax	8.0%	Strahl & Pitsch
 Naturechem CR Emollient	Cetyl Ricinoleate	3.0%	Vertellus
	Ethyl Macadamiate	10.0%	Floritech
 Casmate DCA Emollient	Diisooctyl Adipate	18.0%	Vertellus
	Ethylhexyl Isononanoate, Cetyl Dimethicone	15.0%	Phoenix
Phase B			
	Zinc Oxide, Titanium Dioxide, Caprylic/Capric Triglyceride, Polyhydroxystearic Acid, Alumina, Stearic acid, Triethoxycaprylylsilane	30.0%	Ultra Chemical

Procedure:

1. Heat Phase A ingredients to 80-82°C with slow, continuous mixing.
2. Mix until all waxes are completely melted, then add Phase B.
3. Mix until uniform, start to cool.
4. Dispense into stick components before solidification.

A highly emollient stick especially designed to help dry heels, knees, and elbows. It features Casid™ HSA Emulsifier to improve stick integrity and imparts emolliency. Featured, also, are Castorwax™ MP-80 Hydrogenated Castor Oil, Naturechem™ CR Emollient, Castorlatum™ Castor Oil, and Casmate™ DCA Emollient.

Trade Name	INCI	W/W%	Supplier
Phase A			
 Castorwax MP-80 Hydrogenated Castor Oil	Hydrogenated Castor Oil	5.0%	Vertellus
 Casid™ HSA Emulsifier	Hydroxystearic Acid	6.0%	Vertellus
	Ozokerite	5.0%	Strahl & Pitsch
	Euphorbia Cerifera (Candelilla) Wax	8.0%	Strahl & Pitsch
 Naturechem CR Emollient	Cetyl Ricinoleate	3.0%	Vertellus
	Ethyl Macadamiate	10.0%	Floratech
 Castorlatum Castor Oil	Ricinus Communis (Castor) Seed Oil (and) Hydrogenated Castor Oil	20.0%	Vertellus
 Casmate DCA Emollient	Diisooctyl Adipate	18.0%	Vertellus
	Ethylhexyl Isononanoate, Cetyl Dimethicone	15.0%	Phoenix
	Butyrospermum Parkii (Shea) Butter	5.0%	Essential Ingredients
	Hydrogenated Jojoba Oil	2.5%	Ultra Chemicals
	Mangifera Indica (Mango) Seed Butter	2.5%	Essential Ingredients



Procedure:

1. Heat Phase A ingredients to 80-82°C with slow, continuous mixing.
2. Mix until all waxes are completely melted, then add Phase B.
3. Mix until uniform, start to cool.
4. Dispense into stick components before solidification.

Cleanse-It Stick

Formula #LCA0103201







A cleanser in a stick. Great for travel. It contains no water, but when applied to wet skin, it develops a good lather compared to the same base containing cetearyl alcohol. It features Casid™ HSA Emulsifier and Naturechem™ CR Emollient.

Trade Name	INCI	W/W%	Supplier
Phase A			
	Glycerin	42.00%	Vantage
Water	Aqua	4.70%	
	Galactoarabinan	0.30%	TRI-K Industries Inc.
Phase B			
	Sodium Coco Sulfate	25.00%	Colonial
	Potassium Cocoyl Glycinate (and) Potassium Cocoate (and) Aqua	15.00%	Ajinomoto
	Lauric Acid	0.50%	Protameen
Phase C			
 Casid HSA Emulsifier	Hydroxystearic Acid	12.00%	Vertellus
 Naturechem CR Emollient	Cetyl Ricinoleate	0.50%	Vertellus

Procedure:

1. Add Glycerin to main mixing vessel.
2. Premix water and Galactoarabinan. Add to Phase A.
3. Begin to heat.
4. Add Potassium Cocoyl Glycinate and Potassium Cocoate and Aqua.
5. Add Sodium Coco Sulfate and continue mixing until dissolved.
6. Heat batch to reach 75-80°C. Add Casid HSA Emulsifier. Mix until melted and clear.
7. Add Naturechem CR Emollient.
8. Fill components while batch is warm.
9. Allow to cool in components and solidify.

Product List

Trade Name	INCI	Form	Features and Benefits	Applications	Suggested Use Levels*
Casid™ HSA Emulsifier 	Hydroxystearic Acid	Flake	Natural vegetable-based thixotropic gelling agent. Gels hydrocarbons, many esters, certain silicones. Provides structure to anhydrous products and stick formulations. Has higher melting point than stearic acid. Can be used as secondary emulsifier and viscosity and building agent when added to the oil phase of O/W (Oil/Water) emulsions.	<ul style="list-style-type: none"> Antiperspirants Anhydrous pigmented lip gels Hair styling Sun care & Skin care Soaps Stick formulations 	Emulsifier: 0.5-2.0% Gellant: 1-5% Anhydrous sticks: 2-20%
Casmate™ DCA Emollient 	Diisooctyl Adipate	Liquid	A dry porosity ester. It provides more of a matte appearance without tacky build-up and has excellent co-solvent properties. It is a general purpose emollient where prolonged playtime is desired.	<ul style="list-style-type: none"> Skin care & Lip care Sun care & Hair care Antiperspirants Deodorants Bath preparations Fragrances 	Skin care: 1-10% Bath care: 5-25%
Castorlatum™ Castor Oil 	Ricinus communis (Castor) Seed Oil and Hydrogenated Castor Oil	Semi-solid	Vegetable-derived alternative to petrolatum. Helps provide an occlusive barrier decreasing TEWL (Transepidermal Water Loss) and promoting moisturization.	<ul style="list-style-type: none"> Skin care & Lip care Sun care & Hair care Antiperspirants Deodorants Bath preparations Fragrances 	Skin care: 1-10% Bath care: 5-25%
Castorwax™ MP-80 Hydrogenated Castor Oil 	Hydrogenated Castor Oil	Flake	Vegetable derived wax (MP-80 melts at ~80°C, respectively). Odorless, tasteless and compatible with most other natural waxes. In the oil phase of O/W (oil/water) emulsions, it functions as an internal phase thickener and emollient. Hydrates the skin through humectancy via hydrogen bonding between the water and the material's hydroxyl groups.	<ul style="list-style-type: none"> Antiperspirants Cosmetic pencils Lipsticks Creams & Lotions 	Emollient: 1-6% Anhydrous sticks: 2-40% Cosmetic pencils: 5-20% Lipsticks: 10-25%
Naturechem™ CR Emollient 	Cetyl Ricinoleate	Semi-solid	Naturally-derived emollient with outstanding aesthetics. Has medium slip, melts at skin temperature, and has non-tacky, velvety after-feel. Can impart body and cushion in formulations.	<ul style="list-style-type: none"> Lipsticks Lip balms Creams & lotions Lip treatments 	Emollient: 1-10% Lip: 5-30%
Naturechem™ GMHS Emulsifier 	Glyceryl Hydroxystearate	Flake	Naturally-derived secondary emulsifier, stabilizer, and emollient. Efficient alternative to Glyceryl Stearate (GMS). Has an HLB (Hydrophilic-Lipophilic Balance) of 3.4 and provides thickening in O/W (Oil/Water) Emollient. Excellent remedial for low viscosity. Improves aesthetics versus Glyceryl Stearate.	<ul style="list-style-type: none"> Anhydrous sticks Creams & lotions 	Emulsifier: 0.5-2.0% Emollient: 1-6% Anhydrous Sticks: 2-20%



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