PERSONAL CARE

PRODUCT GUIDE

VERDANT

A SAMYANG COMPANY

INNOVATE THE FUTURE

Verdant is here to meet the demands of evolving personal care trends with innovative, effective solutions that resonate with consumers.

ENERGY SAVINGS & REDUCED CARBON EMISSIONS

Verdant offers cold-mix ingredients with eco-friendly benefits, eliminating the need for heat during production, saving energy, & supporting sustainability goals:

- **MACKSPEC**™ Emulsifying Thickeners
- **MACKSPEC**™ **OCC** Oil-suspending Cleansing Concentrates
- **MACKPEARL**® Liquid Pearlizers
- **MACKAM**® **BC-39** & **MACKADET**® **BC 51** Betaine Amide Blends

WATERLESS PRODUCTS TREND

Verdant offers powdered, pastilled, and flaked ingredients. These eco-friendly formats reduce water use and packaging waste while offering versatile performance in applications:

- **MACKAM**® **1200** Powder Betaine
- **MACKAM**® **2800** Powder Betaine
- **MACKINE**® **301U** Conditioning Agent
- **MACKINE**® **BDMA** Conditioning Agent

SKINIFICATION & SCALP CARE

Verdant offers ingredients to suspend actives and exfoliants, and humectants for hydration in cleansing and leave-on products. We also provide ingredients that are compatible with AHAs and BHAs, all to deliver a balanced blend of scalp care and skin renewal:

- **MACKSPEC**™ **F30** Thickener
- **MACKADET**® **AHA-SF** Concentrate
- **MACKOL**® **& MACKAMIDE**® Humectants
- **MACKAM**® Alkyl Betaines
- **MACKAM**® **LHS E** Alkyl Sultaine

MILDNESS & NON-SENSITIZING

Verdant offers gentle ingredients that are ideal for use in sensitive skin cleansers and for baby care products.

- **MACKAM**® Amphoacetates,
- **MACKAM**® Amphopropionates
- **MACKADET**® **EQ-112K** Mild Concentrate
- **MACKADET**® **EQ 70 BR** Mild Concentrate

PERSONALIZATION

Verdant is here to work closely with formulators, manufacturers, consultants and marketing teams to embrace personalization, to help you create customizable formulations for diverse skin and hair types:

- **Vegan options**
- **Halal & Kosher Certified**
- **Bio-based Ingredients**

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Because You Are **BEAUTIFUL...**

...and we love being part of it.

MACKAM®
Amphopropionates & Amphoacetates

Amphoterics are gentle, high foaming surfactants that cleanse and have conditioning properties on skin and hair. They improve mildness and reduce the irritation potential of other surfactants such as anionics. They are ideal for sensitive skin and baby shampoo formulations, and are preservative-free.

Foam Generation	Foam Boosting & Stabilization	Viscosity Building	Mildness
Excellent ★★★★★	Excellent ★★★★★	Excellent ★★★★★	Extremely Mild ★★★★★

Product	INCI Name	Natural Source	Actives, %	RCI, %	Properties & Applications
MACKAM® 2CSF-40CG	Disodium Cocoamphodipropionate	Coconut, Palm Kernel*	40	57	Salt-free grade that helps solubilize conditioning agents into shampoos and body washes. This high foaming surfactant makes it an ideal choice when formulating mild shampoos and cleansers such as neutralizing shampoos and facial cleansers.
MACKAM® Ultra C-32	Sodium Cocoamphoacetate	Coconut, Palm Kernel*	30	70	These high-purity, preservative-free amphoteric surfactants are suggested as a mild component for personal care formulations. They are recommended for baby shampoo or body wash, provide rich foam, and have low irritation properties.
MACKAM® HPC 32 L	Sodium Cocoamphoacetate	Coconut, Palm Kernel*	30	70	
MACKAM® 1C	Sodium Cocoamphoacetate	Coconut, Palm Kernel*	40	70	
MACKAM® HPL-28	Sodium Lauroamphoacetate	Coconut, Palm Kernel*	28	66	Demonstrates enhanced foam stability in the presence of oils and efficient viscosity building in sulfate-free and amide-free formulations compared to Sodium Cocoamphoacetate.
MACKAM® Ultra L-32E	Sodium Lauroamphoacetate	Coconut, Palm Kernel*	30	66	
MACKAM® C2M CONC NP	Disodium Cocoamphodiacetate	Coconut, Palm Kernel*	38	70	Provides good foaming performance in soft and hard water, as well as in the presence of oils. Recommended in baby shampoos and hospital cleansers, and leaves a pleasant hair and skin feel. **MACKAM® 2C 75** is a low viscosity grade to make it even easier to handle.
MACKAM® 2C	Disodium Cocoamphodiacetate	Coconut	38	70	
MACKAM® 2C 75	Disodium Cocoamphodiacetate	Coconut	31	70	
MACKAM® 2W	Disodium Wheatgerm-amphodiacetate	Wheat Germ	25	70	Based on wheat germ with a higher molecular weight C18 carbon chains, this amphoacetate is even more mild to skin and eyes than coconut or palm kernel (C-12) derived amphoterics. This grade also develops more viscosity than C12 derived amphoterics.

MIXED

***Contact us about Mass Balance options.**

MACKAM®
Betaines

Betaines are used to increase mildness, boost and stabilize foam, and build viscosity in personal care formulations. They are used as cleansing agents in shampoos, face & body cleansers and toothpaste. Betaines have been the go-to amphoteric surfactant for decades.

Foam Generation	Foam Boosting & Stabilization	Viscosity Building	Mildness
Excellent ★★★★★	**Excellent** ★★★★★	**Very Good** ★★★★☆	**Very Mild** ★★★★☆

Product	INCI Name	Preservative	Natural Source	Actives,%	RCI, %	Properties & Applications
MACKAM® BAB	Babassuamidopropyl Betaine	Sodium Benzoate	Babassu	30	66	Derived from Amazonian babassu oil and has similar properties to Cocamidopropyl Betaine.
MACKAM® BB 30	Babassuamidopropyl Betaine	Sodium Benzoate	Organically Certified Babassu	30	66	Derived from organically grown, Amazonian babassu oil.
MACKAM® 35	Cocamidopropyl Betaine	None	Coconut	30	66	Industry standard grade of Cocamido-propyl Betaine. **MACKAM® 35 HA** is a high pH grade for optimal formualtion flexibility.
MACKAM® 35 HA	Cocamidopropyl Betaine	None	Coconut	30	66	
MACKAM® 35UL	Cocamidopropyl Betaine	DMDM Hydantoin	Coconut	30	66	Light colored grades with no unsaturation.
MACKAM® CAB 818	Cocamidopropyl Betaine	None	Coconut	30	66	
MACKAM® BET C 30	Cocamidopropyl Betaine	CIT/MIT	Coconut	30	66	
MACKAM® 35UL HA	Cocamidopropyl Betaine	None	Coconut	30	66	High pH for optimal product stability. EDTA-free grade.
MACKAM® CAB 818U	Cocamidopropyl Betaine	None	Coconut	30	66	
MACKAM® 50ULB	Cocamidopropyl Betaine	None	Coconut	38	63	High active, light colored grade with no unsaturation, 25% more concentrated than **MACKAM® 35 UL**.

Product	INCI Name	Preservative	Natural Source	Actives,%	RCI, %	Properties & Applications
MACKAM® C37	Cocamidopropyl Betaine	Sodium Benzoate, Benzyl Alcohol	Coconut, Palm Kernel*	30	67	High purity grade with "stripped" alkyl distribution for superior viscosity building and foam.
MACKAM® C37B	Cocamidopropyl Betaine	Sodium Benzoate	Coconut, Palm Kernel*	30	67	
MACKAM® LMB K	Lauramidopropyl Betaine	CIT/MIT	Coconut, Palm Kernel*	30	63	High performance grades based on pure vegetable derived lauric acid. Have superior foam properties over Cocamidopropyl Betaine.
MACKAM® DAB	Lauramidopropyl Betaine	None	Coconut, Palm kernel*	30	63	
MACKAM® BB/FLA	Coco-Betaine	None	Coconut, Palm Kernel*	30	76	Low odor, preservative free, and stable in low pH range. Tehse products also have great viscosity building and foam properties. Suitable for AHA cleansers and neutralizing shampoos.
MACKAM® CB 35	Coco-Betaine	None	Coconut, Palm Kernel*	30	76	
MACKAM® D40	Coco-Betaine	None	Coconut, Palm Kernel*	38	76	
MACKAM® LAB	Lauryl Betaine	None	Coconut, Palm Kernel*	30	76	Low odor, preservative free, and stable in low pH range. These products have great viscosity building properties and superior foam properties compared to Coco-Betaine.
MACKAM® LB 35	Lauryl Betaine	None	Coconut, Palm Kernel*	30	76	
MACKAM® 1200 Powder	Lauramidopropyl Betaine	None	Coconut, Palm Kernel*	85	63	For use in shampoo or bath bars and also finds application in oral care. Excellent choices for no/low water formulations.
MACKAM® 2800 Powder	Cocamidopropyl Betaine	None	Coconut	85	67	

MIXED ***Contact us about Mass Balance options.**

MACKAM®
Sultaines

Sultaines are growing in popularity as primary surfactants, especially in sulfate-free formulations. They are used to increase mildness, foam, and viscosity in cleansing systems. They are high active and do not contain preservatives, making them an ideal choice for sustainable face & body cleansers and shampoos. formulations.

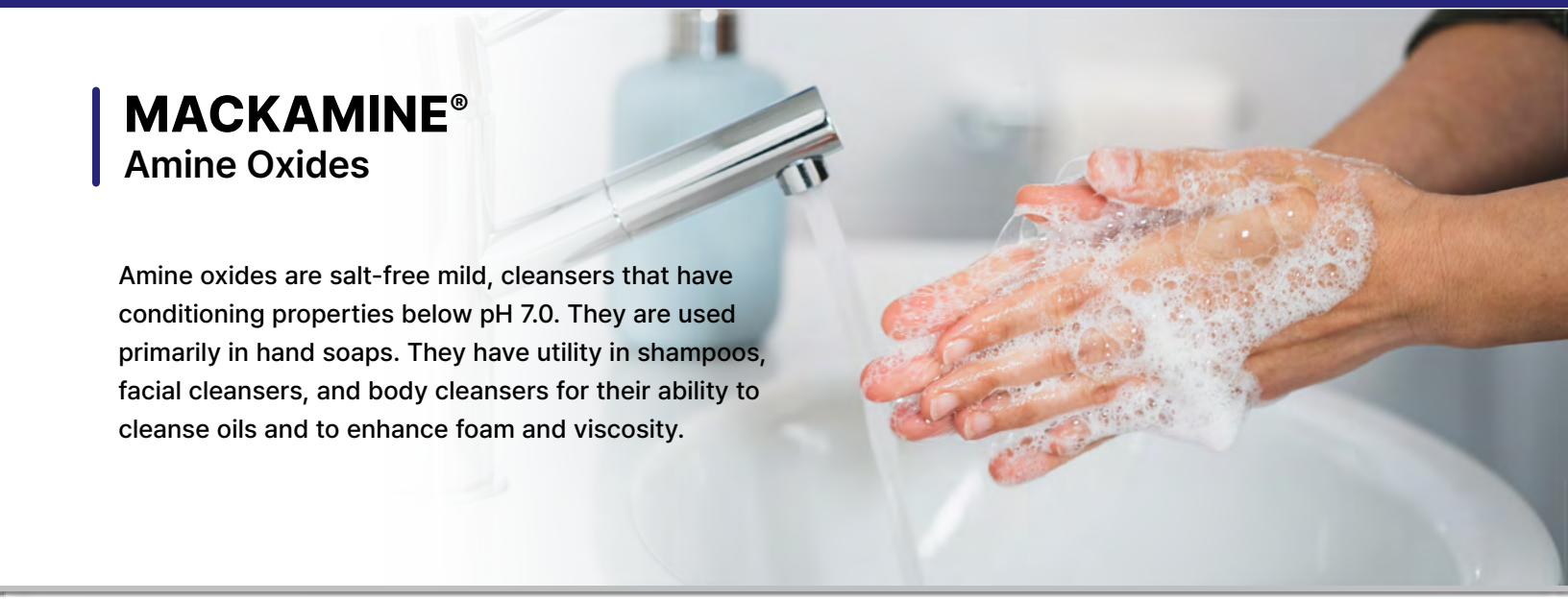
Foam Generation	Foam Boosting & Stabilization	Viscosity Building	Mildness
Very Good ★★★★☆	Very Good ★★★★☆	Very Good ★★★★☆	Very Mild ★★★★☆

Product	INCI Name	Natural Source	Actives, %	RCI, %	Properties & Applications
MACKAM® CBS 50G E	Cocamidopropyl Hydroxysultaine	Coconut	40	63	Readily biodegradable, coconut oil derived sultaine. Sultaines are an excellent alternative to more traditional secondary surfactants with similar, yet broader salt thickening. Cold processable and Prop 65-free makes it ideal for today's formulations.
MACKAM® 50 SB	Cocamidopropyl Hydroxysultaine	Coconut, Palm Kernel*	44	63	Low odor and color grades of Cocamidopropyl Hydroxysultaine, these products are glycerin free and have greater viscosity building than **MACKAM® CBS 50G E**.
MACKAM® CBS	Cocamidopropyl Hydroxysultaine	Coconut, Palm Kernel*	42	63	
MACKAM® LSB 50	Lauramidopropyl Hydroxysultaine	Coconut, Palm Kernel*	41	60	Enhanced foam properties, better flash foam and viscosity building than similar betaines, and greater foaming characteristics over **MACKAM® 50 SB** & **MACKAM® CBS**. It is produced from a high grade of lauric acid.
MACKAM® LHS E	Lauryl Hydroxysultaine	Coconut, Palm Kernel*	41	71	Stable in low pH systems making it suitable for AHA cleansers and neutralizing shampoos.

MIXED

***Contact us about Mass Balance options.**

MACKAMINE®
Amine Oxides



Amine oxides are salt-free mild, cleansers that have conditioning properties below pH 7.0. They are used primarily in hand soaps. They have utility in shampoos, facial cleansers, and body cleansers for their ability to cleanse oils and to enhance foam and viscosity.

Foam Generation	Foam Boosting & Stabilization	Viscosity Building	Mildness
Excellent ★★★★★	**Excellent** ★★★★★	**Very Good** ★★★★☆	**Very Mild** ★★★★☆

Product	INCI Name	Natural Source	Actives,%	RCI, %	Properties & Applications
MACKAMINE® CAO	Cocamidopropylamine Oxide	Coconut	30	73	Provides excellent viscosity building, foam boosting and foam stability properties in a wide spectrum of formulations. Have conditioning properties in low pH systems and are salt free.
MACKAMINE® CAO E 36	Cocamidopropylamine Oxide	Coconut, Palm Kernel*	33	73	
MACKAMINE® FB 48	Lauramidopropylamine Oxide	Coconut, Palm Kernel*	33	72	Similar to Cocamidopropylamine Oxide with enhanced foam generation due to optimized carbon distribution.
MACKAMINE® LO	Lauramine Oxide	Coconut, Palm Kernel*	30	86	Similar to above with enhanced viscosity and foam properties and broader pH range stability. Both are vegetable derived.
MACKAMINE® LA	Lauramine Oxide	Coconut, Palm Kernel*	30	86	

MIXED

***Contact us about Mass Balance options.**

MACKESTER®
Glycol Esters

Glycol esters are used as pearlizing agents in surfactant systems such as hand soaps, shampoos and body wash, and as emulsifiers in lotions, creams and hair conditioners.

Product	INCI Name	Natural Source	Actives, %	RCI, %	Properties & Applications
MACKESTER® EGDS	Glycol Distearate	None	100	0	Glycol distearates are highly effective in high solids formulations. Verdant's **MACKESTER®** product range delivers a high shine pearlescence when formulated in shampoos and face & body wash formulations. Used as an emulsifier in lotions and creams.
MACKESTER® GDSV	Glycol Distearate	Palm*	100	93	
MACKESTER® EGMS 6051	Glycol Stearate	None	100	0	Developed for opacifying and pearlizing shampoos and face & body wash formulations. Used as an emulsifier in lotions and creams.
MACKESTER® GSTP	Glycol Stearate	None	100	0	
MACKESTER® GSV	Glycol Stearate	Palm*	100	85	

MACKAMIDE®
Amides

Alkanolamides enhance the viscosity response, foam stability and foam density in anionic based systems. Their high solids content makes them suitable for solid cleansing formats such as shampoo bars and bar soap formulations.

Product	INCI Name	Natural Source	Actives, %	RCI, %	Properties & Applications
MACKAMIDE® CMA	Cocamide MEA	Coconut	62	87	Highly effective viscosity builder, boosts and stabilizes foam in anionic surfactant based cleansers. Suitable for liquid and bar soap applications.
MACKAMIDE® LMA	Lauramide MEA	Coconut, Palm Kernel*	85	86	High purity lauryl derived foam stabilizer and thickening agent for anionic based cleansers.
MACKAMIDE® CPA	Cocamide MIPA	Coconut	51	83	Optimized chain length amide for high performance applications. Aids in emulsifying small amounts of oil and is DEA-free.
MACKAMIDE® LPA	Lauramide MIPA	Coconut, Palm Kernel*	55	80	Possesses better solubility than Lauramide MEA. Glycerin and DEA-free.
MACKAMIDE® SMV	Stearamide MEA	Palm*	~95	90	Opacifying agent for aqueous based cleansers. Functions synergistically with Glycol Esters to bring intense pearlescence.

MIXED

***Contact us about Mass Balance options.**

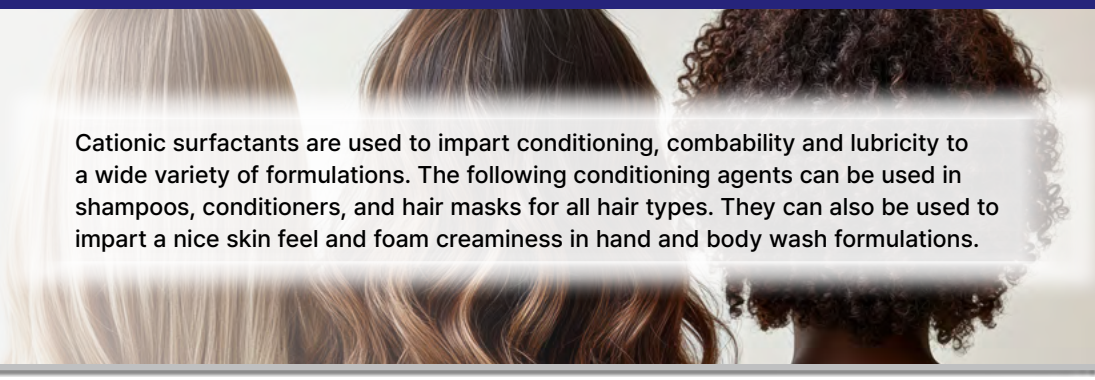
MACKAMIDE® & MACKOL®
Skin Moisturizing Humectants

Skin moisturizing alkanolamides and sugar alcohols are humectants that function similarly to molecules that comprise the natural moisturizing factor found in human skin. They provide moisturizing and improved feel at low usage levels in cleansers, lotions and creams.

Product	INCI Name	Natural Source	Actives,%	RCI, %	Properties & Applications
MACKAMIDE® LME	Lactamide MEA	None	100	0	Excellent humectant & skin conditioner for use in non-oily skin lotions and hair care. Unlike Glycerin, **MACKAMIDE® LME** provides a light conditioning and non-tacky feel to the skin and hair and has a very light color and odor.
MACKAMIDE® AME 100	Acetamide MEA	None	100	0	Excellent moisturizing properties with stronger humectancy than Glycerin. Useful in hair and skin care applications as a humectant.
MACKAMIDE® LAME	Lactamide MEA (and) Acetamide MEA	None	100	0	Superior humectant blend for use in hair and skin care formulations and combines the properties of both Acetamide MEA and Lactamide MEA.
MACKOL® ALL-70	Psicose (Allulose)	Starch / Sugars	70	100	Sugar alcohols derived via an enzymatic processes of Non-GMO plant-based raw materials and are thus 100% bio-based. In skin care products, these MACKOL® products provide humectancy, leaving skin feeling moisturized and smooth.
MACKOL® FOS-75	Fructooligosaccharide (and) Saccharide Isomerate	Starch / Sugars	77	100	
MACKOL® MAL-70	Maltitol (and) Saccharide Isomerate	Starch / Sugars	70	100	

MACKAMER™
Nonionic Thickeners

Product	INCI Name	Natural Source	Preservative	Solids, %	Properties & Applications
MACKAMER™ HP105	Hydroxypropyl Guar	Guar	None	95	A versatile nonionic, polymeric thickener derived from guar gum. It develops viscosity, stabilizes emulsions, and provides some conditioning properties.

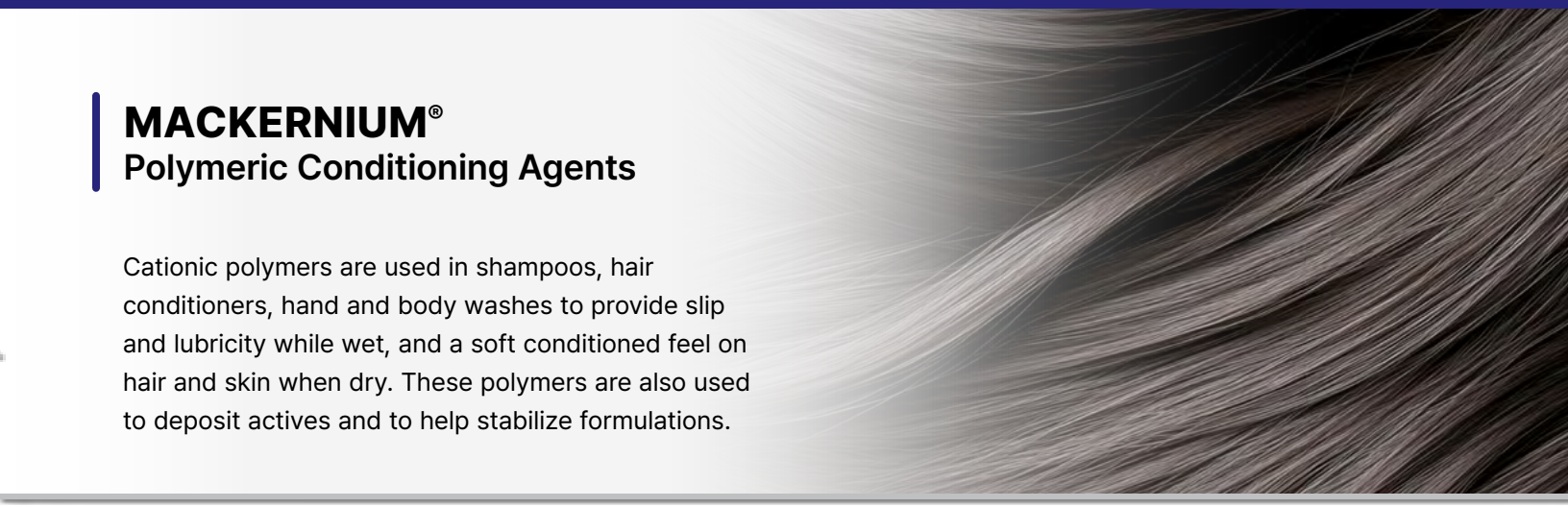


MACKERNIUM® & MACKINE®
Conditioning Agents

Cationic surfactants are used to impart conditioning, combability and lubricity to a wide variety of formulations. The following conditioning agents can be used in shampoos, conditioners, and hair masks for all hair types. They can also be used to impart a nice skin feel and foam creaminess in hand and body wash formulations.

Product	INCI Name	Natural Source	*Actives, %	Solids, %	RCI, %	Properties & Applications
MACKERNIUM® CC112 P9	Isostearamidopropyl Ethyldimonium Ethosulfate & PEG-9	Rapeseed or Synthetic	73	75	74	Effective, anionic compatible quaternary compound to add lubricity and antistatic properties. Clear conditioning shampoos and body cleansers are easily formulated.
MACKERNIUM® SDC 85	Stearalkonium Chloride	Palm	90	85	86	High active, flaked form of Stearalkonium Chloride, it is easier to handle compared to low active pastes. Preservative-free and contains no animal derivatives.
MACKERNIUM® BTAC 228	Behentrimonium Chloride & Ethanol	Rapeseed	80	80	61	BTAC cationic surfactants are versatile and beneficial ingredients in hair care products, particularly for frizzy, dry, curly, or textured hair. They condition, soften, and smoothe hair cuticles, reducing static and frizz while providing shine. Products containing BTAC may be suitable for daily use. BTAC surfactants can also act as skin-softening emulsifiers, creating a smooth formulation consistency.
MACKERNIUM® BTAC P7580	Behentrimonium Chloride & Isopropanol	Rapeseed	80	98	61	
MACKERNIUM® BTAC D7570	Behentrimonium Chloride & Dipropylene Glycol	Rapeseed	70	97	53	
MACKERNIUM® BTAC PF4050	Behentrimonium Chloride & Cetearyl Alcohol	Rapeseed, Palm	40	98	90	
MACKERNIUM® BTAC PF4060	Behentrimonium Chloride & Cetearyl Alcohol	Rapeseed, Palm	40	100	90	
MACKERNIUM® BTMS 225	Behentrimonium Methosulfate & Cetearyl Alcohol	Rapeseed, Palm	25	100	91	BTMS cationic surfactants are versatile ingredients used in hair conditioners and hair masks. BTMS surfactants enhance slip, reducing tangles and helps reduce breakage. They hydrate and soften hair, control frizz and static, and help retain moisture, particularly benefiting dry and high-porosity hair. They do not cause build-up, making them a possible alternative to silicones.
MACKERNIUM® BTMS 7550	Behentrimonium Methosulfate & Cetyl Alcohol	Rapeseed, Palm	50	100	82	
MACKERNIUM® BTMS P8580	Behentrimonium Methosulfate	Rapeseed, Palm	80	98	63	
MACKERNIUM® CTAC 30	Cetrimonium Chloride	Rapeseed, Palm	30	30	75	Useful in shampoos and conditioners, provides light conditioning and frizz control.
MACKINE® 301U	Stearamidopropyl Dimethylamine	Rapeseed	100	100	72	Provides excellent conditioning and combability when formulated in liquid conditioners, crème rinses and cream conditioners. Recommended for light hair feel and fine hair. Cationic-free
MACKINE® BDMA	Behenamidopropyl Dimethylamine	Palm*	100	100	76	Similar to **MACKINE® 301U** with a longer alkyl chain for deeper conditioning

MIXED ***Contact us about Mass Balance options.**



MACKERNIUM®
Polymeric Conditioning Agents

Cationic polymers are used in shampoos, hair conditioners, hand and body washes to provide slip and lubricity while wet, and a soft conditioned feel on hair and skin when dry. These polymers are also used to deposit actives and to help stabilize formulations.

Product	INCI Name	Natural Source	Actives, %	Properties & Applications
MACKERNIUM® HQ- 125LR	Polyquaternium 10	Plant-based Cellulose	91	Being cationic and substantive to hair, these cationic polymers can provide excellent conditioning, combability and anti-static properties in shampoos and conditioners. They can assist actives deposition onto hair and skin. These polymeric quaternaries provide low to moderate viscosity building, depending on the product. In skin cleansers they can provide softness and slip. These are powders, except for **MACKERNIUM® HQ-400G** which is in granular form. PQ-10 products formulate clear and transparent.
MACKERNIUM® HQ- 3000	Polyquaternium 10	Plant-based Cellulose	91	
MACKERNIUM® HQ- 1000	Polyquaternium 10	Plant-based Cellulose	91	
MACKERNIUM® HQ-400	Polyquaternium 10	Plant-based Cellulose	91	
MACKERNIUM® HQ-400G	Polyquaternium 10	Plant-based Cellulose	89	
MACKERNIUM® GQ- C130S	Guar Hydroxypropyl-trimonium Chloride	Guar	86	These cationic guars provide excellent wet/dry combing, thickening and a soft feel to hair. **MACKERNIUM® C130S** is self-hydrating and is suitable for daily shampoos. **MACKERNIUM® C170U** has a higher charge and nitrogen content, providing some thickening properties.
MACKERNIUM® GQ- C170U	Guar Hydroxypropyl-trimonium Chloride	Guar	95	
MACKERNIUM® GQ- CP500	Hydroxypropyl Guar Hydroxypropyltrimonium Chloride	Guar	90	These two cationic guars are suitable for translucent formulations. They provide excellent wet & dry combing, thickening and light feel to hair.
MACKERNIUM® GQ- NT500	Guar Hydroxypropyl-trimonium Chloride	Guar	92	

We strive to help our customers meet their ESG goals. The following sustainable, concentrated systems allow formulators to create cost-effective, high quality products with significantly less environmental impact. These formulated systems meet a variety of sustainable criteria relevant to environmental health and protection. This includes cold processing to save energy, less waste and disposal, concentrated systems to reduce emissions associated with transportation, and less waste with reduced packaging.

MACKAM®
Cold-Processable Liquid Amides

Product	INCI Name	Preservative	Natural Source	Solids, %	Properties & Applications
MACKAM® BC 39	Cocamidopropyl Betaine (and) Cocamide MEA	DMDM Hydantoin	Coconut, Palm Kernel*	39	These amide-betaine blends are easy-to-use alternatives to solid CMEA. They boost and stabilize foam while improving viscosity of anionic systems. No heat is required to use these ingredients, and they can be used at the end of the process as a final viscosity adjuster.
MACKADET® BC 51	Cocamide MEA (and) Coco-Betaine	None	Coconut, Palm Kernel*	50	

MACKPEARL®
Liquid Pearlizers

Product	INCI Name	Preservative	Natural Source	Solids, %	Properties & Applications
MACKPEARL® HG 178	Glycol Distearate, Sodium Laureth Sulfate, Cocamide MEA, Laureth-10	Formic Acid	Coconut, Palm, Palm Kernel*	48	This liquid pearlizer is designed for easy dispersibility at ambient temperature. It easily delivers high shine and pearlescence to surfactant formulations.
MACKPEARL® SFP - 104	Sodium C14-16 Olefin Sulfonate, Glycol Stearate, Cocamidopropyl Betaine	MIT	Coconut, Palm*	44	These liquid pearlizers are animal-free, sulfate-free and amide-free. They provide a quick, attractive pearl and are preserved with MIT. SPF-104 contains EGMS while SPF-106 uses EGDS as the pearl ester.
MACKPEARL® SFP - 106	Sodium C14-16 Olefin Sulfonate, Glycol Distearate, Cocamidopropyl Betaine	MIT	Coconut, Palm*	49	

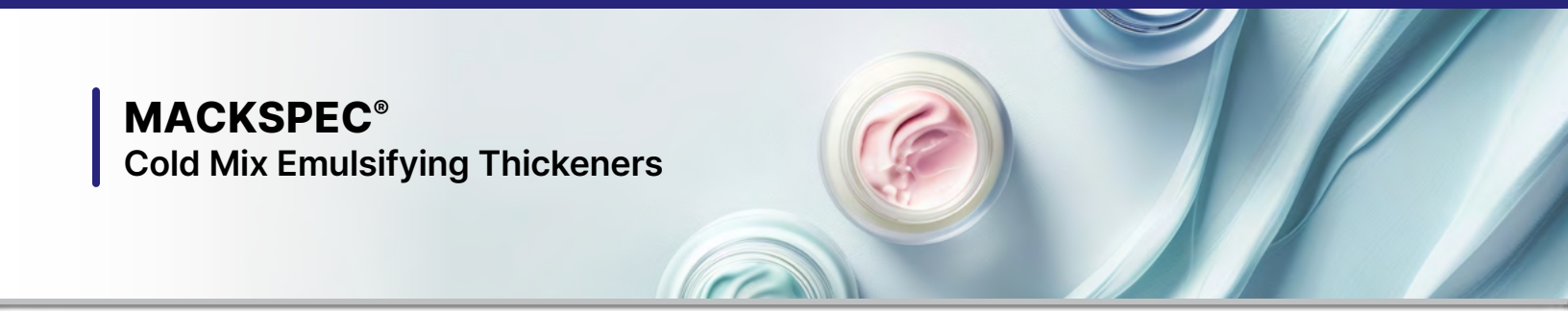
MIXED ***Contact us about Mass Balance options.**

MACKADET® AND MACKSPEC™
Performance Concentrates

Product	INCI Name	Preservative	Natural Source	Solids, %	Properties & Applications
MACKADET® 40-K	Potassium Cocoate	None	Coconut	46	Biodegradable and 100% bio-based. This high lathering liquid coconut-based soap is ideal for cost effective liquid hand wash and body wash formulations.
MACKADET® AHA-SF	Sodium C14-16 Olefin Sulfonate, Sodium Cocoamphoacetate, Cocamidopropyl Betaine	MIT	Coconut, Palm Kernel*	39	**MACKADET® AHA-SF** is an amide-free, sulfate-free concentrate for use in most personal care cleansers. It is a great choice for alpha/beta hydroxy acid cleansers and neutralizing shampoos.
MACKADET® EQ 112K	Cocamidopropyl Betaine, PEG-80 Sorbitan Laurate, Sodium Trideceth Sulfate, PEG-150 Distearate	CIT/MIT	Coconut, Corn, Palm Kernel, Palm*	36-40	Ultra mild and cost-effective systems designed for skin cleansers and baby shampoos with "tear-free" claims. Proven low eye irritation (HET-CAM tests).
MACKADET® EQ 70 BR	PEG-80 Sorbitan Laurate, Cocamidopropyl Betaine, Sodium Trideceth Sulfate*, Sodium Lauroamphoacetate, PEG-150 Distearate, Sodium Laureth-13 Carboxylate	DMDM Hydantoin	Coconut, Corn, Palm Kernel, Palm*	42-45	
MACKSPEC™ OCC 100 [1]	Sodium Trideceth Sulfate, Sodium Lauroamphoacetate, Cocamide MEA	None	Coconut, Palm Kernel*	52	**MACKSPEC™ OCC 100** and **MACKSPEC™ OCC 200** are high active liquid concentrates, that do not require heat to use. They are fully formulated systems that can incorporate up to 30% natural oils to give excellent sensorial properties. Used in body washes, hand soaps and facial cleansers, they provide lotion-like appearance with rich creamy stable foam, giving a smooth skin feel with 24 hour moisturizing and hydration properties.
MACKSPEC™ OCC 200 [1]	Sodium Trideceth Sulfate, Sodium Cocoamphoacetate, Cocamide MEA	None	Coconut, Palm Kernel*	52	
MACKSPEC™ MS-2HC	Sodium Trideceth Sulfate, Cocamidopropyl Hydroxysultaine, Lauroamphoacetate, Sodium Dodeceth Carboxylate	None	Coconut, Palm Kernel*	40	Versatile concentrate that is mild, sulfate-free and amide-free. Excellent choice for gentle shampoos and bodywash formulations.

MIXED ***Contact us about Mass Balance options.**

1. **Product availability is limited to regions outside of North America.**



MACKSPEC®
Cold Mix Emulsifying Thickeners

Product	INCI Name	Sensory Feel	Solids,%	Properties & Applications
MACKSPEC™ AM50S	Acrylamide/Sodium Acryloyldimethyl Taurate Copolymer, C13-14 Isoparaffin, Laureth-7	Soft, Rich	47	**MACKSPEC™** emulsifying mixtures are versatile blends of pre-neutralized polymers, emulsifiers and emollients for use in cosmetics and leave-on skin care. These multifunctional ingredients serve as rheology modifiers, providing thickening, stabilizing, and texturizing benefits. Their ready-to-use, liquid or powder forms allow for easy integration into formulations under moderate shear, in both cold and hot processes. Effective across a broad pH range (3-12). They can help disperse pigments due to their lipo-dispersible nature. Ideal for gels, cream-gels, and emulsions, they deliver textures from sprayable fluids to thick creams while enhancing sensory feel. **MACKSPEC™ AM50S, ST45, HA100L, MP40 and MP100** can also be used to thicken solvents such as glycerin, glycols and ethanol.
MACKSPEC™ HA40	Hydroxyethyl Acrylate / Sodium Acryloyldimethyl Taurate Copolymer, Hydrogenated Polydecene, Polysorbate 80	Light, Fresh	28	
MACKSPEC™ HA100L	Hydroxyethyl Acrylate / Sodium Acryloyldimethyl Taurate Copolymer, Polysorbate 60, Sorbitan Isostearate	Very light, Fresh	>90	
MACKSPEC™ MP40	Sodium Polyacryloyldimethyl Taurate, Dicaprylyl Ether, Polyglyceryl-10 Dilaurate	Soft, Smooth	51	
MACKSPEC™ MP100	Sodium Polyacryloyldimethyl Taurate, Polyglyceryl 10 Dilaurate	Soft, Smooth	>90	
MACKSPEC™ ST45	Sodium Acrylate / Sodium Acryloyldimethyl Taurate Copolymer, Isohexadecane, Polysorbate 80	Light, Soft	46	

MACKSPEC®
Rheology Modifiers

Product	INCI Name	Preservative	Solids, %	Properties & Applications
MACKSPEC™ F30	Acrylates Copolymer	None	30	A rheology modifier which contains 30% active polymer to thicken, suspend and stabilize surfactant & soap based personal cleansing products. Formulates clear.

INSPIRE TO FORMULATE

Personal Care Applications

CUPUAÇU BUTTER HAIR MASK

Ingredients	Function	% $^{w}/_{w}$
PHASE A		
Deionized Water	Carrier	qs 100
MACKINE® 301U	**Conditioner**	**1.9**
Citric acid (50%)	pH Adjuster to 4 - 4.5	~ 0.9
MACKERNIUM® BTAC P7580	**Conditioner**	**3.9**
Glycerin	Humectant	0.5
PHASE B		
Cetearyl Alcohol (50/50)	Consistency agent	3.8
Stearyl Alcohol	Consistency agent	2.6
Cupuaçu butter	Emollient	0.9
MACKESTER® GDSV	**Emulsifier**	**0.5**
PHASE C		
Preservative	Preservative	q.s
Amodimethicone (optional)	Conditioner	0.6
Fragrance	Fragrance	0.2

Process

1. Weigh all ingredients of the oily phase (B) and aqueous phase (A) in two separate vessels
2. Heat each phase A and B up to 70°C for 15 minutes under moderate stirring
3. Stop heating source and add part B into part A under vigorous mixing and let homogenize at least 10 minutes
4. Reduce the speed during the cooling phase and add preservative. Mix until uniform while continuing to cool.
5. Reduce the agitation when batch temperature reaches 45°C, add amodimethicone and fragrance. Mix until uniform.
6. If necessary, compensate for water loss.

SUNFLOWER INFUSION BODY WASH

Ingredients	Function	% $^{w}/_{w}$
Water	Carrier	QS to 100
MACKSPEC™ OCC 200	**Surfactant Concentrate**	**35.00**
Sunflowerseed oil	Emollient Oil /Moisturizer	25.00
Vitamin E Acetate (Tocopheryl Acetate)	Vitamin	0.50
NaCl (20%)	Rheology control	15.00
Citric acid (50%)	pH adjuster	1.35
Perfume	Fragrance	Qs
Preservative	Preservative	Qs

Process

1. Charge water and add **MACKSPEC™ OCC 200** and mix with moderate agitation.
2. Slightly increase the mixing speed & add the oil and mix until homogeneous.
3. Add the Vitamin E Acetate and the salt and mix slowly for 30 minutes until the formulation has thickened.
4. Adjust pH to 5.0-5.5 with the citric acid and mix for 30-60 minutes until the formulation is fully thickened and stable.
5. Finally add fragrance and preservative as required.

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INCI Name	Tradename		Page
Acetamide MEA	MACKAMIDE® AME 100		11
Acrylamide/Sodium Acryloyldimethyl Taurate Copolymer, C13-14 Isoparaffin, Laureth-7	MACKSPEC™ AM50S		16
Acrylates Copolymer	MACKSPEC™ F30		16
Babassuamidopropyl Betaine	MACKAM® BAB	MACKAM® BB 30	6
Behenamidopropyl Dimethylamine	MACKINE® BDMA		12
Behentrimonium Chloride & Cetearyl Alcohol	MACKERNIUM® BTAC PF4050	MACKERNIUM® BTAC PF4060	12
Behentrimonium Chloride & Dipropylene Glycol	MACKERNIUM® BTAC D7570		12
Behentrimonium Chloride & Ethanol	MACKERNIUM® BTAC 228		12
Behentrimonium Chloride & Isopropanol	MACKERNIUM® BTAC P7580		12
Behentrimonium Methosulfate	MACKERNIUM® BTMS P8580		12
Behentrimonium Methosulfate & Cetearyl Alcohol	MACKERNIUM® BTMS 225		12
Behentrimonium Methosulfate & Cetyl Alcohol	MACKERNIUM® BTMS 7550		12
Cetrimonium Chloride	MACKERNIUM® CTAC 30		12
Cocamide MEA / Cocamide MIPA	MACKAMIDE® CMA	MACKAMIDE® CPA	10
Cocamide MEA and Coco-Betaine	MACKADET® BC 51		14
Cocamidopropyl Betaine	MACKAM® 35 MACKAM® 35 HA MACKAM® 35UL MACKAM® CAB 818 MACKAM® BET C 30 MACKAM® 35UL HA	MACKAM® CAB 818U MACKAM® 50ULB MACKAM® C37 MACKAM® C37B MACKAM® 2800 Powder	6, 7
Cocamidopropyl Betaine and Cocamide MEA	MACKAM® BC 39		14
Cocamidopropyl Hydroxysultaine	MACKAM® CBS 50G E MACKAM® 50 SB	MACKAM® CBS	8
Cocamidopropylamine Oxide	MACKAMINE® CAO	MACKAMINE® CAO E 36	9
Coco-Betaine	MACKAM® CB 35	MACKAM® BB/FLA	7
Disodium Cocoamphodiacetate	MACKAM® C2M CONC NP MACKAM® 2C	MACKAM® 2C 75	5
Disodium Cocoamphodipropionate	MACKAM® 2CSF-40CG		5
Disodium Wheatgermamphodiacetate	MACKAM® 2W		5
Fructooligosaccharide (and) Saccharide Isomerate	MACKOL® FOS-75		11
Glycol Distearate	MACKESTER® EGDS	MACKESTER® GDSV	10
Glycol Distearate, Sodium Laureth Sulfate, Cocamide MEA, Laureth-10	MACKPEARL® HG 178		14
Glycol Stearate	MACKESTER® EGMS 6051 MACKESTER® GSTP	MACKESTER® GSV	10
Guar Hydroxypropyltrimonium Chloride	MACKERNIUM® GQ-C130S MACKERNIUM® GQ-C170U	MACKERNIUM® GQ-NT500	13
Hydroxyethyl Acrylate/Sodium Acryloyldimethyl Taurate Copolymer, Hydrogenated Polydecene, Polysorbate 80	MACKSPEC™ HA40		16
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Isostearamidopropyl Ethyldimonium Ethosulfate & PEG-9	MACKERNIUM® CC112 P9		12
Lactamide MEA	MACKAMIDE® LME		11
Lactamide MEA and Acetamide MEA	MACKAMIDE® LAME		11
Lauramide MEA / Lauramide MIPA	MACKAMIDE® LMA	MACKAMIDE® LPA	10
Lauramidopropyl Betaine	MACKAM® LMB K MACKAM® DAB	MACKAM® 1200 Powder	7
Lauramidopropyl Hydroxysultaine	MACKAM® LSB 50		8
Lauramidopropylamine Oxide	MACKAMINE® FB 48		9
Lauramine Oxide	MACKAMINE® LO	MACKAMINE® LA	9
Lauryl Betaine	MACKAM® LAB	MACKAM® LB 35	7
Lauryl Hydroxysultaine	MACKAM® LHS E		8
Maltitol (and) Saccharide Isomerate	MACKOL® MAL-70		8
Polyquaternium 10	MACKERNIUM® HQ-125LR MACKERNIUM® HQ-3000 MACKERNIUM® HQ-1000	MACKERNIUM® HQ-400 MACKERNIUM® HQ-400G	13
Potassium Cocoate	MACKADET® 40-K		15
Psicose (Allulose)	MACKOL® ALL-70		11
Sodium Acrylate/Sodium Acryloyldimethyl Taurate Copolymer, Isohexadecane, Polysorbate 80	MACKSPEC™ ST45		16
Sodium C14-16 Olefin Sulfonate, Glycol Distearate, Cocamidopropyl Betaine	MACKPEARL® SPF - 106		14
Sodium C14-16 Olefin Sulfonate, Glycol Stearate, Cocamidopropyl Betaine	MACKPEARL® SPF - 104		14
Sodium C14-16 Olefin Sulfonate, Sodium Cocoamphoacetate, Cocamidopropyl Betaine	MACKADET® AHA-SF		15
Sodium Cocoamphoacetate	MACKAM® ULTRA C-32 MACKAM® HPC 32 L	MACKAM® 1C	5
Sodium Lauroamphoacetate	MACKAM® ULTRA L-32E	MACKAM® HPL 28	5
Sodium Polyacryloyldimethyl Taurate, Dicaprylyl Ether, Polyglyceryl-10 Dilaurate	MACKSPEC™ MP40		16
Sodium Polyacryloyldimethyl Taurate, Polyglyceryl 10 Dilaurate	MACKSPEC™ MP100		16
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Sodium Trideceth Sulfate, Sodium Cocoamphoacetate, Cocamide MEA	MACKSPEC™ OCC 200		15
Sodium Trideceth Sulfate, Sodium Lauroamphoacetate, Cocamide MEA	MACKSPEC™ OCC 100		15
Stearalkonium Chloride	MACKERNIUM® SDC 85		12
Stearamide MEA	MACKAMIDE® SMV		10
Stearamidopropyl Dimethylamine	MACKINE® 301U		12
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Water, PEG-80 Sorbitan Laurate, Cocamidopropyl Betaine, Sodium Trideceth Sulfate, Sodium Lauroamphoacetate, PEG-150	MACKADET® EQ 70 BR		15

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