

Eastman products
for the cosmetics and
personal care industry

Innovating from the **core** . . .

It's all about the ingredients.

In product development, cosmetics and personal care formulators need innovative solutions to develop and successfully introduce new products that deliver tangible consumer benefits. Eastman is committed to developing innovative technologies and fresh ideas for those formulators. Stemming from Eastman's expertise across a variety of technologies and industries, the global team of cosmetics and personal care ingredient experts is continually seeking new ways to help formulators improve cosmetics and personal care product performance and help with the product development cycle.

We call it innovating from the core — it's what we know best.

Polymers and functional film formers

Eastman's 50 years of experience in polymers and functional film-forming technologies provides formulators with an edge to improve the performance of skin, sun, and hair care products. Eastman's advancements in film formation provide improved smudge and transfer resistance in color cosmetics, water resistance in sunscreens, and tunable firmness in hairstyling products.

Eastman's experts leverage their long-standing know-how across technologies and industries to develop fresh ideas and new ways to enhance the skin and hair and improve adhesion and color endurance in cosmetics.

Delivery systems and innovative ingredients

Our global personal care experts focus on new innovative ingredients and delivery systems. With Eastman's understanding of controlled and sustained-release technologies which have been applied in other industries, the promise of an improved delivery of ingredients in the cosmetics industry becomes reachable. New treatments for the skin and hair, along with improved fragrance performance and endurance, are now possible and will positively impact the consumers' perception of the product's benefits. Eastman is dedicated to offering formulators innovative ingredients to assure they take the lead in bringing these technologies to the cosmetics and personal care market.



Cosmetics and personal care solutions



Sun care

Eastman supplies the sun care segment of the cosmetics industry with Eastman AQ™ 38S polymer, a water-dispersible film former that has the capability to greatly improve water resistance in a variety of sunscreen lotions and sprays for the care and protection of the skin. It is found to be valuable in increasing the duration of UV protection in sunscreen formulas. For example, Eastman AQ 38S offers superior water resistance, providing retention of UV absorbers on the skin even during water exposure. It is characterized by ultrafine dispersions, is an excellent film former, is perfect for use in water-resistant sunscreens, requires no neutralization, goes into the water phase, and aids the emulsification of oil-phase UV absorbers and other organic emollients usually present in sunscreen emulsions.



Hair care

Eastman AQ™ polymers are widely used in the hair care segment of the cosmetics and personal care industry. These versatile polymers serve as hair fixatives in hair care applications such as hairsprays, styling creams, and gels. Eastman AQ polymers provide low tack, excellent hold and curl retention, and enhanced gloss to a variety of hair care products. Dry time, a major factor in hairspray performance, is also greatly reduced with the use of Eastman AQ polymers.

Eastman ingredients for shampoos and conditioners include Eastman Sustane™ SAIB to improve manageability and add body to the hair.

Cosmetics and personal care solutions *(cont'd)*



Color cosmetics

In the color cosmetics segment of personal care where water, smudge, and transfer resistance are critical, Eastman AQ™ polymers are invaluable ingredients to the formulator. These multipurpose film formers provide improved performance in all the resistance properties essential in applications such as foundation, eyeliner, and mascara.

Eastman Sustane™ SAIB and Eastman Sustane™ SAIB MCT are excellent choices for lipstick formulations because of their superior pigment dispersing capability and compatibility with many of the oils used in lipstick. Additionally, they improve transfer resistance, a critical characteristic in lipstick, lip gloss, and lip liner formulations.

Foral™ 85-E CG, Foral™ 105-E CG, and Foralyn™ 5020-F CG hydrogenated rosinates and Regalite™ R1100 CG hydrocarbon resin are also excellent options for lipstick and other lip care formulations. In addition to contributing gloss and adhesion, they offer a wide range of solubility and compatibility with other cosmetic ingredients.

Eastman GEM™ 2-ethylhexyl palmitate is a high-quality ester for use in color cosmetics and skin care applications. It has the added benefit of sustainable manufacturing.

Other color cosmetics ingredients include cellulose esters, coalescing aids and plasticizers, and solvents to improve gloss, hardness, and dry times in nail polishes and lacquers.

Eastman products for cosmetics and personal care

	Skin care	Sun care	Hair care	Hairstyling	Color cosmetics	Nail enamel/remover	Fragrance	APs/deodorants
Adhesion promoters								
Eastman Sustane™ SAIB (sucrose acetate isobutyrate) ^a				✓				
Eastman Sustane™ SAIB MCT	✓		✓	✓				
Eastman Sustane™ SAIB ET-10				✓		✓		
Eastman™ SAIB-90EA					✓			
Foral™ 85-E CG hydrogenated rosinat				✓				
Foral™ 105-E CG hydrogenated rosinat				✓				
Foralyn™ 5020-F CG hydrogenated rosinat				✓		✓		
Regalite™ R1100 CG hydrocarbon resin				✓				
Antioxidants								
Eastman Tenox™ antioxidants	✓	✓	✓	✓		✓	✓	✓
Film formers – cellulose esters								
Eastman™ cellulose acetate butyrate (CAB)					✓			
Eastman™ cellulose acetate propionate (CAP)					✓			
Film formers – water-dispersible polymers								
Eastman AQ™ 38S polymer	✓	✓						
Eastman AQ™ 48 ultra polymer				✓				
Eastman AQ™ 55S polymer				✓				
Fragrance fixatives								
Eastman Sustane™ SAIB			✓	✓	✓	✓		
Eastman™ triacetin			✓	✓	✓	✓		
Plasticizers								
Eastman™ SAIB-90EA					✓			
Eastman™ triacetin			✓	✓	✓	✓		
Eastman TXIB™ formulation additive					✓			

^aFood grade; also available in low-viscosity blends with ethanol or caprylic/capric triglyceride

Eastman products for cosmetics and personal care

	Skin care	Sun care	Hair care	Hairstyling	Color cosmetics	Nail enamel/remover	Fragrance	APs/deodorants
Functional skin care ingredients								
Novel ester technology	✓							
Eastman AQ™ 38S polymer	✓	✓						
Eastman™ hydroquinone, European pharma grade	✓							
Eastman™ hydroquinone, USP grade	✓							
Solvents								
Eastman™ methyl acetate, cosmetic and high-purity grades				✓		✓	✓	
Eastman GEM™ technology								
Eastman GEM™ 2-ethylhexyl palmitate	✓				✓			
Other								
Chemical intermediates (for raw materials)	✓			✓			✓	

Eastman products for cosmetics and personal care

Adhesion promoters

Eastman Sustane™ SAIB, Eastman Sustane™ SAIB MCT, and Eastman™ SAIB (sucrose acetate isobutyrate) are sucrose-based adhesion promoters used to improve adhesion of products to fingernails, skin, and hair. SAIB is available in a variety of low-viscosity blends for cosmetics and personal care applications.

The inclusion of 10% to 20% SAIB (based on total solids) in solvent-based nail lacquers can result in improved film-former flexibility and adhesion.

In transfer-resistant lipsticks, SAIB can function as a plasticizer to soften the primary film former and improve its adhesion and flexibility. In traditional lipsticks, it can improve wear properties by reducing creeping, bleeding, and feathering.

In epilatories, SAIB is used as a tackifier. Its low odor is often preferred over other typically used tackifiers.

In shampoo and conditioning products, SAIB deposits on the hair to provide body and manageability.

Foral™ 85-E CG, Foral™ 105-E CG, and Foralyn™ 5020-F CG hydrogenated rosinates are based on gum rosin — a natural, renewable source. Regalite™ R1100 CG hydrocarbon resin is a fully hydrogenated resin derived from petroleum. Color cosmetics and depilatory wax applications benefit from their inherent adhesive properties. In addition, these resins contribute gloss, an important attribute for lipstick and other lip care products. Foralyn 5020-F CG is also used as a plasticizer and fragrance fixative.

Adhesion promoters *(cont'd)*

Eastman product	INCI name
Eastman Sustane™ SAIB	Sucrose Acetate Isobutyrate
Eastman Sustane™ SAIB ET-10	Sucrose Acetate Isobutyrate (and) Alcohol
Eastman Sustane™ SAIB MCT	Sucrose Acetate Isobutyrate (and) Caprylic/Capric Triglyceride
Eastman™ SAIB-90EA	Sucrose Acetate Isobutyrate (and) Ethyl Acetate
Foral™ 85-E CG hydrogenated rosinat	Glyceryl Hydrogenated Rosinate
Foral™ 105-E CG hydrogenated rosinat	Pentaerythrityl Hydrogenated Rosinate
Foralyn™ 5020-F CG hydrogenated rosinat	Methyl Hydrogenated Rosinate
Regalite™ R1100 CG hydrocarbon resin	Hydrogenated Styrene/Methyl Styrene/Indene Copolymer

Eastman products for cosmetics and personal care

Antioxidants

Eastman offers a number of antioxidants including Eastman Tenox™ BHA (butylated hydroxyanisole), Eastman Tenox™ BHT (butylated hydroxytoluene), and Eastman Tenox™ TBHQ (t-butyl hydroquinone). Antioxidants are used to stabilize many oils, particularly unsaturated oils. They act as free radical scavengers to inhibit the rancidity of creams and lotions and the degradation of fragrances. They can also provide significant antimicrobial effects. Antioxidants are used in fragrances, skin care products, tanning lotions, hair care products, color cosmetics, and antiperspirants and deodorants. All Eastman Tenox™ antioxidants are food grade and kosher.

Eastman product	INCI name
<i>Solid antioxidants</i>	
Eastman Tenox™ BHA antioxidant	BHA
Eastman Tenox™ BHT antioxidant	BHT
Eastman Tenox™ TBHQ antioxidant	TBHQ

Eastman products for cosmetics and personal care

Antioxidants *(cont'd)*

Eastman product	INCI name
<i>Liquid antioxidant formulations</i>	
Eastman Tenox™ 4 antioxidant	Zea Mays (Corn) Oil (and) BHA (and) BHT
Eastman Tenox™ 4B antioxidant	Zea Mays (Corn) Oil (and) BHA
Eastman Tenox™ 8 antioxidant	Zea Mays (Corn) Oil (and) BHT
Eastman Tenox™ 20 antioxidant	Propylene Glycol (and) TBHQ (and) Citric Acid
Eastman Tenox™ 20A antioxidant	Canola Oil Glyceride (and) Zea Mays (Corn) Oil (and) TBHQ (and) Propylene Glycol (and) Citric Acid
Eastman Tenox™ 21 antioxidant	Zea Mays (Corn) Oil (and) Canola Oil Glyceride (and) TBHQ (and) Propylene Glycol (and) Citric Acid
Eastman Tenox™ 25 antioxidant	Canola Oil Glyceride (and) Zea Mays (Corn) Oil (and) Propylene Glycol (and) BHT (and) TBHQ (and) Citric Acid
Eastman Tenox™ R antioxidant	Propylene Glycol (and) BHA (and) Citric Acid

Eastman products for cosmetics and personal care

Film formers — cellulose esters

Cellulose esters are polymers used by the nail care industry as film formers. Films formed from cellulose esters have fast solvent release. Compared to nitrocellulose, cellulose esters are non-yellowing and have excellent clarity and stability. They are nontoxic and easily pigmented. Cellulose acetate butyrate (CAB) and cellulose acetate propionate (CAP) resins are available in a range of viscosities and solubilities to meet the formulator's needs.

Eastman product	INCI name
Eastman™ cellulose acetate butyrate (CAB-381-0.1)	Cellulose Acetate Butyrate
Eastman™ cellulose acetate butyrate (CAB-381-0.5)	Cellulose Acetate Butyrate
Eastman™ cellulose acetate butyrate (CAB-381-2)	Cellulose Acetate Butyrate
Eastman™ cellulose acetate butyrate (CAB-381-20)	Cellulose Acetate Butyrate
Eastman™ cellulose acetate butyrate (CAB-551-0.01)	Cellulose Acetate Butyrate
Eastman™ cellulose acetate butyrate (CAB-551-0.2)	Cellulose Acetate Butyrate
Eastman™ cellulose acetate propionate (CAP-482-0.5)	Cellulose Acetate Propionate

Eastman products for cosmetics and personal care

Film formers — water-dispersible polymers

Eastman AQ™ polymers are highly water-dispersible polymers used in hairstyling, sun care, and color cosmetics for their film-forming properties. They are formulated in a variety of hairstyling products including hair gels, sprays, and waxes. AQ polymers are also used in sunscreen lotions, creams, and milk sprays. In color cosmetics, they are used in mascara, eyeliner, and makeup.

Eastman AQ™ polymers are sulfopolyesters that disperse directly in water without the assistance of emulsifiers, organic co-solvents, inorganic bases, amines, or other additives. AQ polymers aid the dispersion of hydrophobic ingredients in water-based formulations and form clear films at room temperature from aqueous dispersions. AQ polymers differ in glass transition temperature (T_g), alcohol tolerance, and degree of water resistance.

Eastman AQ™ 38S polymer provides excellent film formation and water resistance in sunscreen products. As indicated by the number in the product name, AQ 38S polymer has a T_g of about 38°C. Because of its low T_g , AQ 38S forms flexible films on the skin. It imparts a smooth feel to creams, lotions, and sprays and adheres to the skin.

Eastman AQ™ 48 ultra polymer was designed specifically for use as a hair fixative in 55% VOC hairspray. Therefore, it is more compatible with higher levels of alcohol than Eastman AQ™ 38S or 55S and has good wash out with shampooing. AQ 48 polymer provides excellent hold at high humidity in aerosol and pump hairsprays, as well as in clear styling gels.

Eastman AQ™ 55S polymer has good film integrity when combined with other cosmetics ingredients and is the preferred AQ polymer to improve water and smudge resistance of water-based makeup and mascara. In hairstyling products, AQ 55S provides excellent hold under high-humidity conditions and stiffness that is easily modified with plasticizers and thickeners.

Eastman product	INCI name
Eastman AQ™ 38S polymer	Polyester-5
Eastman AQ™ 48 ultra polymer	Polyester-5
Eastman AQ™ 55S polymer	Polyester-5

Eastman products for cosmetics and personal care

Fragrance fixatives

Eastman supplies the industry with several fragrance fixatives that retard evaporation and promote the long-lasting aroma of perfumes. Eastman Sustane™ SAIB and Eastman™ triacetin are used in the compounding of fragrance concentrates and in the formulation of finished fragrances. Clear and nearly colorless and odorless, they are stable to heat and UV light.

Eastman product	INCI name
Eastman Sustane™ SAIB	Sucrose Acetate Isobutyrate
Eastman Sustane™ SAIB ET-10	Sucrose Acetate Isobutyrate (and) Alcohol
Eastman Sustane™ SAIB MCT	Sucrose Acetate Isobutyrate (and) Caprylic/Capric Triglyceride
Eastman™ triacetin	Triacetin

Eastman™ products for cosmetics and personal care

Plasticizers

Eastman™ plasticizers are used by the nail care industry to increase the flexibility of films. Consumers expect their nails to look good for five to seven days after a manicure. If films are over-plasticized, they will dry too slowly and become dull because of marring. If the plasticizer is too volatile, it will evaporate and the film will become brittle. Eastman supplies the nail care industry with a number of plasticizers, each possessing subtle differences in solubility, viscosity, and odor. Typically, individual plasticizers are chosen to achieve the desired balance of characteristics.

Eastman product	INCI name
Eastman™ SAIB 90-EA	Sucrose Acetate Isobutyrate (and) Ethyl Acetate
Eastman™ triacetin	Triacetin
Eastman TXIB™ formulation additive	Trimethyl Pentanyl Diisobutyrate

Eastman products for cosmetics and personal care

Functional skin care ingredients

From sunscreens to moisturizing creams, Eastman offers a variety of ingredients to improve skin care formulations. Eastman supplies novel ester technology and functional film formers.

Eastman's novel ester technology features high selectivity and mild reaction conditions to tailor functional active ingredients for skin care. By carefully selecting the alcohol and acid components, the ester derivative can show superior performance, increased stability and solubility, and better skin compatibility compared to the starting alcohol or acid. Eastman has developed this technology to manufacture derivatives of retinol, idebenone, resveratrol, DMAE, kojic acid, and azelaic acid.

For many years, hydroquinone has been formulated into creams, lotions, and gels to produce effective skin-lightening products. Eastman™ hydroquinone, USP grade, meets or exceeds the requirements of the United States Pharmacopoeia and is produced under conditions of current good manufacturing practices for drugs. Eastman maintains information on our products in a drug master file with the U.S. FDA. In the European Union, skin lighteners containing hydroquinone are regulated as drugs and must be approved by the available authoritative body of European Member States for pharmaceutical products. Please contact your Eastman representative to request applicable documentation for support of the marketing authorization application for products in Europe using Eastman hydroquinone, European pharma grade. Because a high-quality hydroquinone is needed to ensure safety, effectiveness, and consistent purity and potency, Eastman supplies only Eastman hydroquinone, USP grade or European pharma grade, for skin-lightening products worldwide, subject to applicable laws and regulations.

Eastman AQ™ 38S polymer provides excellent film formation and improved water resistance in sun care products.

Eastman product	INCI name
Eastman AQ™ 38S polymer	Polyester-5
Eastman™ hydroquinone, European pharma grade	Hydroquinone
Eastman™ hydroquinone, USP grade	Hydroquinone

Eastman products for cosmetics and personal care

Solvents

Eastman™ esters, which are most commonly used in nail care products, include methyl acetate. Methyl acetate, which evaporates very fast, is exempt from regulation as a VOC under U.S. federal law and can be used to lower the VOCs in hairsprays. It is also used in non-acetone nail polish removers.

<u>Eastman product</u>	<u>INCI name</u>
Eastman™ methyl acetate, high purity	Methyl Acetate
Eastman™ methyl acetate, cosmetic grade	Methyl Acetate

Eastman GEM™ technology

Eastman GEM™ technology is setting a new standard in sustainably manufactured cosmetic ingredients. Eastman's proprietary GEM™ technology, a process that uses enzymes and closely controlled manufacturing conditions to eliminate high temperatures, strong acids, and unwanted by-products, consumes less energy compared with conventional manufacturing processes. Eastman GEM™ 2-ethylhexyl palmitate is a high-quality material with the added benefit of sustainable manufacturing, guided by the U.S. EPA's Twelve Principles of Green Chemistry. *The beauty is in the process.*

Sustainable advantages of Eastman GEM™ technology

- Consumes less energy
- Low greenhouse gas emissions
- Minimal waste generated
- No process water consumption
- Adheres to the Twelve Principles of Green Chemistry
- Can utilize natural source materials to produce ingredients

Eastman products for cosmetics and personal care

Others

Chemical intermediates (for raw materials)

Eastman manufactures a variety of acids, aldehydes, and anhydrides for use in the production of cosmetics or fragrance ingredients. Many of these raw materials are available in reagent, food, feed, kosher, and USP grades. Acetic acid is offered in several dilution strengths. Aldehydes are fundamental in the production of solvents, glycol ethers, butyrate esters, plasticizers, acrylates, and many other chemicals and plastics. Ultimately, some of these ingredients become part of cosmetics and perfumes.

Product literature list

- CB-9** Eastman Tenox™ antioxidants for cosmetics and personal care products
- CB-31** Eastman products for the fragrance industry
- CB-37** Eastman™ SAIB and Eastman Sustane™ SAIB (Sucrose Acetate Isobutyrate) for cosmetics and personal care
- CB-40** Eastman AQ™ 48 ultra polymer formulating tips for clear 55% VOC hairspray
- CB-41** Eastman AQ™ polymers for cosmetics and personal care
- CB-44** Eastman Sustane™ SAIB MCT sucrose-based adhesion promoter for cosmetics
- CB-51** Flexible-hold styling gels — strong or natural with Eastman AQ™ 55S polymer
- CB-54** Benefits and compatibility of Eastman Sustane™ SAIB in formulations containing silicones
- CB-67** Clear conditioning gel with Eastman AQ™ 48 polymer and UCARE™ polymers JR
- CB-68** Eastman resins for cosmetics and personal care
- CB-138** Eastman GEM™ 2-ethylhexyl palmitate for skin care and color cosmetics



Formulary

In product development, cosmetics and personal care formulators need innovative solutions to develop and successfully introduce new products. Eastman's cosmetics and personal care ingredients experts are continually developing new ways to help formulators improve their products' performance and deliver consumers the benefits they most desire. Visit our formulary section on www.eastmanpersonalcare.com as we continue to add new formulations!

- CB-128** Water-resistant sunscreen lotion with Eastman AQ™ 38S polymer
- CB-134** Spray gel composition with Eastman AQ™ 48 ultra polymer
- CB-135** High SPF sunscreen spray with Eastman AQ™ 38S polymer
- CB-136** Hairstyling cream with Eastman AQ™ 55S polymer



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It is the responsibility of the cosmetic formulator or manufacturer to determine the suitability of all raw materials, including any Eastman product used in its final product in order to ensure safety and compliance with requirements of all appropriate U.S. and international regulatory agencies.

Material Safety Data Sheets providing safety precautions, that should be observed when handling and storing Eastman products, are available online or by request. You should obtain and review the available material safety information before handling any of these products. If any materials mentioned are not Eastman products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

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