



**EASTMAN**

## Eastman products

*for the personal care and  
cosmetics industry*

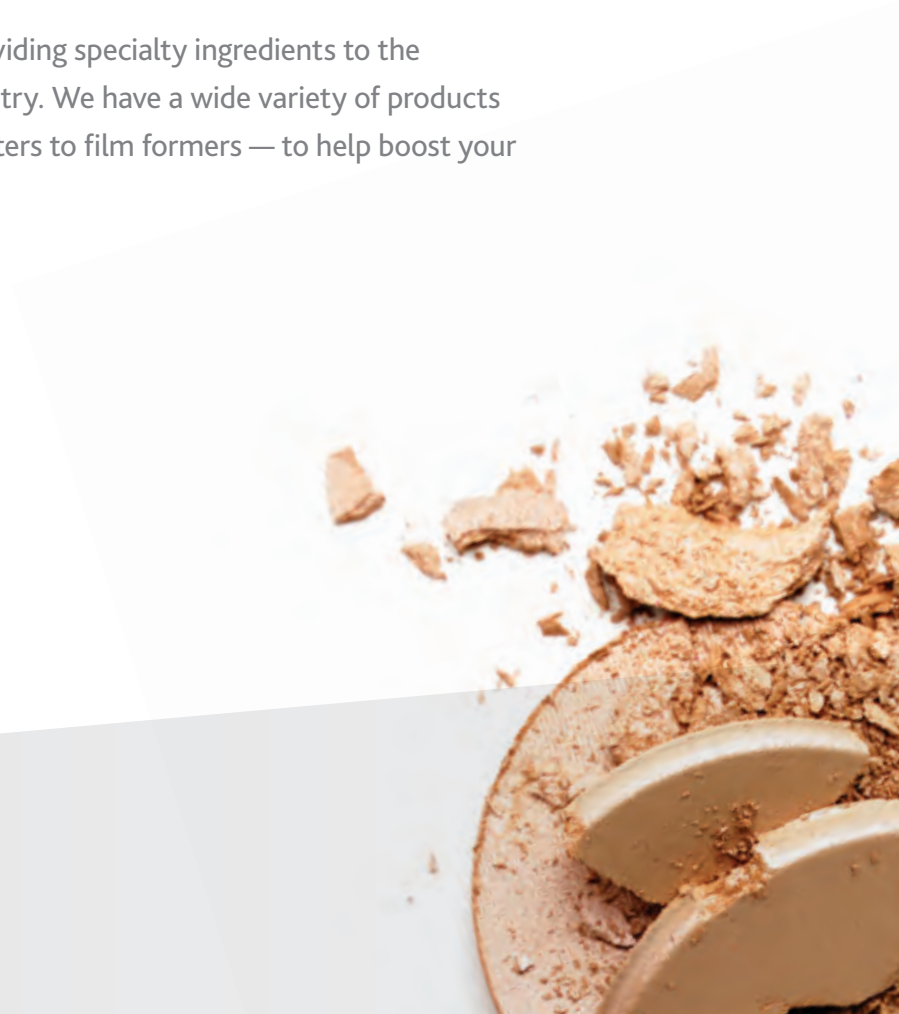
# Beauty

## on the molecular level

### **It's all about the ingredients.**

For product development, personal care and cosmetics formulators need innovative solutions to create and successfully introduce new products with tangible consumer benefits. Eastman is committed to establishing original technologies and fresh ideas for those formulators. Our global team of personal care and cosmetics experts is continually seeking new ways to help formulators improve product performance and the product development cycle.

Eastman has a long history of providing specialty ingredients to the personal care and cosmetics industry. We have a wide variety of products available — from adhesion promoters to film formers — to help boost your product performance.





## Polymers and functional film formers

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 experts leverage their long-standing know-how across technologies and industries to develop fresh ideas. They are always looking for new ways to enhance skin care and hairstyling products and improve adhesion and endurance in color cosmetics.

## Delivery systems and innovative ingredients

Our global personal care experts focus on innovative ingredients and delivery systems. With Eastman's understanding of controlled and sustained-release technologies that have been applied in other industries, the promise of improved delivery of ingredients in the cosmetics industry becomes reachable. New treatments for skin care and hairstyling, along with improved fragrance performance and endurance, are now possible and will positively impact the consumer's 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 personal care and cosmetics market.



# Personal care and cosmetics solutions

## Sun care

Eastman supplies the sun care segment of the personal care 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, 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.

## Hairstyling

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

Eastman ingredients for shampoos and conditioners include Eastman Sustane™ SAIB (sucrose acetate isobutyrate) to improve manageability and add body to the hair.

## Color cosmetics

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

Both Sustane SAIB and SAIB-90 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.

Eastman GEM™ retinyl linoleate is a high-purity antiaging ingredient that increases ease of formulation and offers excellent performance. Both offer 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.



# Application guide

Product application	Skin care	Sun care	Hair care	Hair styling	Color cosmetics	Nail enamel/ remover	Fragrances	AP/ DEO	Depilatories
<b>Adhesion promoters</b>									
Eastman Sustane™ SAIB (sucrose acetate isobutyrate), food grade, kosher					✓				
Eastman Sustane SAIB MCT (sucrose acetate isobutyrate), food grade, kosher					✓	✓			
Eastman SAIB-90					✓	✓			
Eastman SAIB-90EA					✓	✓			
Eastman SAIB-100					✓	✓			
Eastman TXIB™ formulation additive						✓			
<b>Antioxidants</b>									
Eastman Tenox TBHQ antioxidant, food grade, kosher	✓	✓	✓		✓		✓	✓	
<b>Film formers—cellulose esters</b>									
Eastman cellulose acetate butyrate (CAB)	✓					✓			
Eastman cellulose acetate propionate (CAP)	✓					✓			
<b>Film formers—water-dispersible polymers</b>									
Eastman AQ™ 38S polymer	✓	✓							
Eastman AQ 48 ultra polymer				✓					
Eastman AQ 55S polymer				✓	✓				
<b>Fragrance fixatives</b>									
Eastman Sustane™ CG200 fragrance fixative							✓		
<b>Plasticizers</b>									
Eastman SAIB-90						✓			
Eastman SAIB-90EA						✓			
Triacetin	✓				✓	✓	✓		
<b>Functional skin care ingredients</b>									
Eastman hydroquinone, USP grade	✓								
Eastman GEM™ retinyl linoleate	✓				✓				
Eastman GEM retinyl sunflowerate	✓				✓				
<b>Solvents</b>									
Eastman ethyl acetate, food grade, kosher						✓			
Eastman methyl acetate, high purity				✓		✓	✓		
<b>Preservatives</b>									
Eastman benzoic acid, TG, flake	✓	✓	✓		✓			✓	
Probenz™ SG sodium benzoate, kosher	✓	✓	✓		✓			✓	

## Adhesion promoters

Eastman Sustane SAIB and Eastman SAIB 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 personal care and cosmetics 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 lipstick, SAIB can function as a plasticizer to soften the primary film former and improve its adhesion and flexibility. In traditional lipstick, 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.

Eastman product	INCI name
Eastman Sustane SAIB, food grade, kosher	Sucrose acetate isobutyrate
Eastman Sustane SAIB MCT	Sucrose acetate isobutyrate (and) caprylic/capric triglycerides
Eastman SAIB-90	Sucrose acetate isobutyrate, alcohol, methyl alcohol, MIBK, ethyl acetate, heptane
Eastman SAIB-90EA	Sucrose acetate butyrate (and) ethyl acetate
Eastman SAIB-100	Sucrose acetate isobutyrate

## Antioxidants

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. Antioxidants are used in fragrances, skin care products, tanning lotions, hairstyling products, color cosmetics, and antiperspirants and deodorants.

Eastman product	INCI name
Solid antioxidants	
Eastman Tenox TBHQ antioxidant	TBHQ

## 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 nonyellowing and have excellent clarity and stability. They can be safely used in nail care products and are 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 321-0.1)	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 cellulose acetate propionate (CAP 504-0.2)	Cellulose acetate propionate
Eastman cellulose acetate butyrate (CAB 553-0.4)	Cellulose acetate butyrate





## 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 cosolvents, 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 hair spray. Therefore, it is more compatible with higher levels of alcohol than Eastman AQ 38S or 55S and is easy to wash out with shampooing. AQ 48 ultra polymer provides excellent hold at high humidity in aerosol and pump hair sprays, 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

## Fragrance fixatives

Eastman Sustane™ CG 200 fragrance fixative gives your fragrance longevity. Tested on scent oils suitable for personal care and fine fragrances, Sustane promotes longevity in a wide variety of scents while sustaining their original character. Sustane is odorless, colorless, and easy to handle. Its active ingredient is used in beverage and pharmaceutical applications, so you know it's safe to use. When you formulate with Eastman Sustane fragrance fixative, you give your customers what they want: a fragrance that endures as much as it endears.

Eastman product	INCI name
Eastman Sustane CG 200 fragrance fixative	Sucrose acetate isobutyrate (and) alcohol

## Plasticizers

Plasticizers are used to increase the flexibility of films in the nail care industry, where consumers expect their manicures to look good for five to seven days. If films are overplasticized, they will dry too slowly and become dull from marring. If the plasticizer is too volatile, it evaporates, and the film becomes brittle. Eastman SAIB-90 and SAIB 90-EA are light-colored, stable liquids that are soluble in most alcohols and help the nail care industry achieve the best formulations.

Eastman product	INCI name
Eastman SAIB-90	Sucrose acetate isobutyrate, alcohol, methyl alcohol, MIBK, ethyl acetate, heptane
Eastman SAIB-90EA	Sucrose acetate butyrate (and) ethyl acetate
Eastman triacetin, food grade, kosher	Triacetin



## Functional skin care ingredients

Eastman offers unique ingredients for skin care antiaging formulations using heritage chemistries and our novel Eastman GEM™ technology.

This ester technology features high selectivity and mild reaction conditions to customize active ingredients for skin care. By carefully selecting the alcohol and acid components, the ester derivatives can show superior performance, increased stability and solubility, and better skin compatibility compared to the starting alcohol or acid. Eastman developed this technology to manufacture retinol derivatives but can apply it to other functional materials such as idebenone, DMAE and kojic 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 Pharmacopeia and is produced under current good manufacturing practices for drugs. Eastman maintains information on our products in a drug master file with the U.S. FDA. Because a high-quality hydroquinone is needed to ensure safety, effectiveness and consistent purity and potency, we supply only Eastman hydroquinone, USP grade, for skin-lightening products worldwide subject to applicable laws and regulations.

Eastman product	INCI name
Eastman GEM retinyl linoleate	Retinyl linoleate
Eastman GEM retinyl sunflowerate	Retinyl sunflowerseedate
Eastman hydroquinone, USP grade	Hydroquinone

## Eastman GEM technology

Eastman GEM technology is setting a new standard in sustainably manufactured cosmetics ingredients. The beauty is in the process, which uses enzymes and closely controlled manufacturing conditions to eliminate high temperatures, strong acids and unwanted by-products. It also consumes less energy compared to conventional manufacturing processes.

The products include:

- GEM retinyl linoleate, a high-purity antiaging ingredient that increases ease of formulation and provides excellent performance
- GEM retinyl sunflowerate, a nonirritating, highly effective antiaging active partially derived from sunflower fatty acids

Both materials used for skin care and color cosmetics have the added benefit of sustainable manufacturing, guided by the U.S. EPA's 12 Principles of Green Chemistry.

Sustainable advantages of Eastman GEM technology:

- Consumes less energy
- Low greenhouse gas emissions
- Minimal waste generated
- No water consumption in the process
- Adheres to the 12 Principles of Green Chemistry
- Can produce ingredients with natural source materials



Winner of the  
**2009 Presidential  
Green Chemistry  
Challenge Award**

Eastman product	INCI name
Eastman GEM retinyl linoleate	Retinyl linoleate
Eastman GEM retinyl sunflowerate	Retinyl sunflowerseedate

## Preservatives

Preservatives can help your products last longer and protect them from damaging microorganisms. Eastman offers benzoic acid and Probenz™ SG sodium benzoate as preservatives for the personal care and cosmetics industry. Both ingredients can be used in skin care, hairstyling, color cosmetics and deodorant products.

Eastman product	INCI name
Eastman benzoic acid, TG, flake	Benzoic acid
Probenz SG sodium benzoate, kosher	Sodium benzoate

## Solvents

Eastman ester solvents, most commonly used in nail care products, include methyl acetate for high purity. Methyl acetate, which evaporates very quickly, is exempt from regulation as a VOC under U.S. federal law and can be used to lower the VOCs in hair sprays. It is also used in non-acetone nail polish removers.

Eastman product	INCI name
Eastman methyl acetate, high purity	Methyl acetate
Eastman ethyl acetate, food grade, kosher	Ethyl acetate

## Informational literature

CC-PC-14408	Personal care and cosmetics application guide
ADD-COS-013-1	Hairstyling
ADD-COS-013-2	Sun care
CC-PC-14547	Skin care
CC-PC-14548	Cosmetics
ADD-4605	Success with water-dispersible sulfopolyesters
CC-PC-15865	Eastman Sustane™ and Eastman SAIB (sucrose acetate isobutyrate) for cosmetics and personal care
CB-40	Eastman AQ 48 ultra polymer formulating tips for clear 55% VOC hair spray
ADD-COS-7902	Eastman AQ polymers for cosmetics and personal care
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

## Starting point formulations

In product development, personal care and cosmetics formulators need innovative solutions to develop and successfully introduce new products. Eastman's personal care and cosmetics ingredients experts are continually developing new ways to help formulators improve their products' performance and deliver consumers the benefits they most desire. Visit our literature center at [eastman.com/personalcare](http://eastman.com/personalcare) as we continue to add new formulations!

ADD-COS-4531	Lipstick
ADD-COS-11466	Water-resistant sunscreen lotion
ADD-COS-11451	Hairstyling spray gel composition
ADD-COS-11472	High SPF sunscreen spray
ADD-COS-11535	Hairstyling cream



To learn more about how Eastman ingredients can best enhance your personal care and cosmetics products, visit us at [eastman.com/personalcare](http://eastman.com/personalcare).

# EASTMAN

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