

EASTMAN



Eastman products

*for the personal care and
cosmetics industry*

Beauty

on the molecular level

It's all about the ingredients.

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

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.

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 color cosmetics, hairstyling, skin, and sun 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 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 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 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.

Hair care

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 hairsprays, 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 hairspray 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.

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 to 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 cosmetic 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 |
|---|-----------|----------|-----------|--------------|-----------------|---------------------|------------|--------|
| Adhesion promoters | | | | | | | | |
| Eastman Sustane™ SAIB (sucrose acetate isobutyrate), food grade, kosher | | | | | ✓ | | | |
| Eastman SAIB-90 | | | | | ✓ | ✓ | | |
| Eastman SAIB-90EA | | | | | ✓ | ✓ | | |
| Eastman SAIB-100 | | | | | ✓ | ✓ | | |
| Foral™ 85-E CG hydrogenated rosin | | | | | ✓ | | | |
| Foral 105-E CG hydrogenated rosin | | | | | ✓ | | | |
| Foralyn™ 5020-F CG hydrogenated rosin ester | | | | | ✓ | | ✓ | |
| Regalite™ R1100 CG hydrocarbon resin | | | | | ✓ | | | |
| Regalite R1090 hydrocarbon resin | | | | | | | | ✓ |
| Eastman ester gum 8D resin | | | | | | | | ✓ |
| Antioxidants | | | | | | | | |
| Eastman Tenox™ BHT antioxidant, food grade | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ |
| 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 | | | ✓ | | ✓ | ✓ | ✓ | |
| Plasticizers | | | | | | | | |
| Eastman SAIB-90 | | | | | | ✓ | | |
| Eastman SAIB-90EA | | | | | | ✓ | | |
| Functional skin care ingredients | | | | | | | | |
| Eastman hydroquinone, USP grade | ✓ | | | | | | | |
| Solvents | | | | | | | | |
| Eastman methyl acetate, high purity | | | | ✓ | | ✓ | ✓ | |
| Eastman MAA (methyl acetoacetate) | | | | | | | ✓ | |
| Eastman propionic acid, food grade | | | | | | | ✓ | |
| Emollient esters | | | | | | | | |
| Eastman GEM™ 2-ethylhexyl palmitate | ✓ | ✓ | | | ✓ | | | ✓ |
| Preservatives | | | | | | | | |
| 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.

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.

Regalite R1090 and ester gum 8D resin are used in deodorants.

| Eastman product | INCI name |
|---|--|
| Eastman Sustane™ SAIB, food grade, kosher | Sucrose acetate isobutyrate |
| Eastman SAIB-90 | Sucrose acetate isobutyrate, alcohol, methyl alcohol, MIBK, ethyl acetate, heptane |
| Eastman SAIB-90EA | Sucrose acetate isobutyrate, ethyl acetate |
| Eastman SAIB-100 | Sucrose acetate isobutyrate |
| Foral™ 85-E CG hydrogenated rosinate | Glyceryl hydrogenated rosinate |
| Foral 105-E CG hydrogenated rosinate | Pentaerythrityl hydrogenated rosinate |
| Foralyn™ 5020-F CF hydrogenated rosin ester | Methyl hydrogenated rosinate |
| Regalite™ R1100 CG hydrocarbon resin | Hydrogenated styrene/methyl styrene/indene copolymer |
| Regalite R1090 hydrocarbon resin | Hydrogenated styrene/methyl styrene/indene copolymer |
| Eastman ester gum 8D resin | Glyceryl rosinate |

Antioxidants

Eastman Tenox™ BHT (butylated hydroxytoluene) antioxidant is available for multiple applications within personal care and cosmetics. 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, hair care products, color cosmetics, and antiperspirants and deodorants. Tenox BHT antioxidant is food grade and kosher.



| Eastman product | INCI name |
|-------------------------------|-----------|
| <i>Solid antioxidants</i> | |
| Eastman Tenox BHT antioxidant | BHT |

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 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-551-0.1) | 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 |



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 hairspray. 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 hairsprays, as well as in clear styling gels.

Eastman AQ 55S polymer has good film integrity when combined with other cosmetic 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™ SAIB can be used as a fragrance fixative to retard evaporation and promote the long-lasting aroma of perfumes. Sustane SAIB is used in the compounding of fragrance concentrates and in the formulation of finished fragrances. Light in color and odorless, Sustane SAIB is stable to heat and UV light.

| Eastman product | INCI name |
|----------------------|-----------------------------|
| Eastman Sustane SAIB | Sucrose acetate isobutyrate |

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 SAIB 90 and SAIB 90-EA to the nail care industry. Both are a light colored, stable liquid that is soluble in most alcohols.

| Eastman product | INCI name |
|-------------------|--|
| Eastman SAIB-90 | Sucrose acetate isobutyrate, alcohol, methyl alcohol, MIBK, ethyl acetate, heptane |
| Eastman SAIB-90EA | Sucrose acetate isobutyrate, ethyl acetate |

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. Because a high quality hydroquinone is needed to ensure safety, effectiveness, and consistent purity and potency, Eastman supplies only Eastman hydroquinone, USP 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, USP grade | Hydroquinone |

Preservatives

Preservatives can help your product 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 esters, which are most commonly used in nail care products, include methyl acetate, high purity. 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 nonacetone nail polish removers. Eastman also offers methyl acetoacetate (MAA) and propionic acid F for fragrance applications.

| Eastman product | INCI name |
|-------------------------------------|---------------------|
| Eastman methyl acetate, high purity | Methyl acetate |
| Eastman methyl acetoacetate (MAA) | Methyl acetoacetate |
| Eastman propionic acid, food grade | Propionic acid |

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. 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

Product literature list

| | |
|-------------|--|
| ADD-COS-008 | Personal care and cosmetics application guide |
| 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-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, 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 www.eastman.com/personalcare as we continue to add new formulations!

| | |
|---------------|---|
| ADD-COS-018-1 | Lipstick formulation |
| ADD-COS-018-2 | Lip gloss robust formulation |
| ADD-COS-018-3 | Lip gloss light formulation |
| ADD-COS-018-4 | Creamy facial cleanser formulation |
| 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 |



To learn more about how Eastman ingredients can best enhance your personal care and cosmetics products, visit us at www.eastman.com/personalcare.



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