SUN CARE SOLUTIONS

Performance-driven technology for effective sun care without compromise

HALLSTAR

Hallstar offers decades of sun care expertise and unique formulation solutions. We work collaboratively with companies around the world to enhance next generation products.

Sun care products present some of the most daunting challenges for beauty and personal care formulators. Adding to this complexity, nearly every global region has its own consumer preferences and SPF/PFA rules. A UV filter or active ingredient approved in one country may not be acceptable in another.

Hallstar pioneered photostability science, and today we offer the most powerful and unique sun protection technology on the market. By working closely with our customers, we can help meet the tough challenges of sun degradation and aesthetic needs—as well as regulatory and market preferences—so you can innovate with confidence.

Custom formulations based on changing customer needs

Hallstar is well known for its deep competency in photostability science, ester chemistry, emulsifiers and functional naturals. Our broad portfolio includes thousands of ready-made formulations, but we also offer the option to create entirely unique, customer-specific formulated solutions. Our state-of-the-art global laboratories offer onsite *in vitro* testing with solar simulation and unsurpassed technical support.

LET'S WORK WONDERS®

PHOTOSTABILIZATION

Hallstar photostabilizers provide safe, efficient and persistent stabilization for a wide variety of personal care ingredients. Unlike UV filters which strongly absorb solar radiation, the quenching mechanisms in these products eliminate UV filter instability and the creation of harmful reactive oxygen species upon exposure to sunlight.

SolaStay® S1
(Ethylhexyl Methoxycrylene)

The most powerful photostabilizer on the market today. SolaStay® S1 preserves the effectiveness of UV filters by interacting with both the singlet and triplet states. It returns UV filters to their ground states —without absorbing sunlight. An outstanding solvent for crystalline UV filters, SolaStay® S1 is easily emulsified and suitable for use in lotions, creams, sprays, sticks and gels.

SolaFresh™
(Diethylhexyl 2,6-Napthalate)

SolaFresh™ enhances UV protection performance, allowing high SPF formulations while still complying with expanding sunscreen regulations. It has good solvency and skin emollience, as well as high compatibility with UV filters. Its combination effect with other photostabilizers allows high sun protection performance without the use of regionally restricted UV filters like octocrylene, oxybenzone and octinoxate.

Polycrylene®
(Polyester-8)

This is a triplet state-quenching photostabilizer ideal for customers seeking to photostabilize avobenzone to improve sun protection.

AvoBrite®
(Acrylates Copolymer)

AvoBrite® is the first cost effective, globally approved and China-compliant solution for stabilizing butyl methoxydibenzoylomethane (avobenzone) and avenbenzone combinations. AvoBrite® has been clinically proven to protect avobenzone from degrading upon sun exposure and releasing damaging free radicals. With AvoBrite®, sun care products can safely maximize the strong UV absorption powers of avobenzone and enter lucrative new markets.

Synoxyl® HSS
(Trimethoxybenzylidene Pentanedione)

Synoxyl® HSS is a proprietary photostabilizer that can work synergistically with UV filter actives (both organic and mineral) to enhance the SPF/PFA of sunscreen formulations. Synoxyl® HSS can also inhibit the formation of photo-induced ROS, delivering enhanced skin health benefits.

ANTEOXIDANT™ TECHNOLOGY

We live in extraordinary times. The entire concept of aging is being challenged and transformed. And now, a new breakthrough in anti-photoaging science – Micah®. Not a UV filter, not an antioxidant, Micah® is a revolutionary and safe way to stop skin aging in its tracks by blocking the formation of light-induced oxidative stress. Proactive, not reactive, Micah® prevents visible signs of aging: damage to the extracellular matrix, loss in skin elasticity and the creation of fine lines and wrinkles.

Micah®

(Bis(Cyano Butylacetate) Anthracenediylidene)

Not a UV filter, not an antioxidant, Micah® deters skin aging by blocking the formation of light-induced oxidative stress. Proactive, not reactive, this anti-photoaging active prevents damage to the extracellular matrix, maintains skin elasticity and halts the creation of fine lines and wrinkles.

Micah® is the pioneering technology for proactive products that stop sun damage before it begins. Using a revolutionary discovery in fused-ring cyanoacrylates, Micah® returns photosensitizers to the ground state, stopping the formation of damaging reactive oxygen species (ROS) and free radicals. Independent testing has proven that Micah® successfully prevents ROS and markers associated with inflammation, photoaging, redness and irritation. Safe and effective, Micah® can give a range of products a commanding lead in the highly competitive beauty market.

- Stops formation of free radicals resulting from exposure to UV, HEV, and visible light
- Photostable
- No metabolic interference
- Tested both in vitro and in vivo
- Suitable for use in both sun care and skin care products

MINERAL DISPERSIONS

ZINC OXIDE MINERAL UV FILTERS

Combining the benefits of a readily flowable zinc oxide dispersion with Hallstar's patented photostabilization expertise, Hallstar's line of mineral dispersions line includes HallBrite® EZ-FLO ZDX, HallBrite® EZ-FLO ZDX Plus, and HallBrite® ZDX Clear. These products combine the benefits of industry-leading ZnO performance with built-in photostabilization technology.

HallBrite® EZ-FLO ZDX

(Zinc Oxide 60%, Butyloctyl Salicylate, Tricetearеth-4 Phosphate, Trimethoxycaprylylsilane)

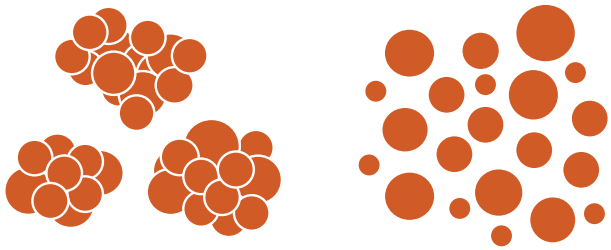
HallBrite® EZ-FLO ZDX Plus

(Zinc Oxide 58%, Butyloctyl Salicylate, Ethylhexyl Methoxycrylene, Tricetearеth-4 Phosphate, Trimethoxycaprylylsilane)

HallBrite® ZDX Clear

(Zinc Oxide (68%), Butyloctyl Salicylate, Ethylhexyl Isononanoate, Ethylhexyl Methoxycrylene, Polyhydroxystearic Acid)

HALLBRITE® BHB ELIMINATES AGGLOMERATION



Before After

SOLUBILIZERS

Hallstar solubilizers are multifunctional ingredients that provide superior solvency for solid sun care actives, while offering excellent spreadability and resistance against wash off. Hallstar offers moderately polar to highly polar solubilizer options to suit specific formulation needs.

HallBrite® BHB

(Butylocytl Salicylate)

As a highly effective solubilizer for sunscreen actives with moderate polarity and low viscosity, HallBrite® BHB serves as an excellent carrier and dispersant for micronized titanium dioxide, zinc oxide and cosmetic colorants. This product also improves formulation aesthetics while imparting an elegant moisturizing feel to the skin in an odorless, colorless and tasteless liquid with low potential for irritation.

Spectrasolv® DMDA

(Dimethyl Capramide)

A highly polar solubilizer for sunscreen actives particularly suited to high SPF formulations, Spectrasolv® DMDA has superior solvency compared to traditional esters and improves the freeze-thaw stability of emulsions.

EMOLLIENTS

Hallstar Sun Care emollients can add a variety of sensory-enhancing characteristics and textures to cosmetic products, while delivering added functionality to sunscreen formulations. From elegant slip, light skin feel and quick-spreading behavior to thick conditioning needs with slower spread and heavier skin feel, Hallstar Sun Care emollients are aesthetically impactful ingredients proven to enhance skin's hydration, elasticity and barrier repair and, functionally, they deliver proven performance benefits like enhanced sun protection, solvency, and pigment wetting.

HallSens™ emollients – light and easily spreading emollients for an impactful consumer sensory experience

HallSens™ OI
(Ethylhexyl Isononanoate)

HallSens™ OI is a globally approved, differentiated molecule designed to deliver consumer-preferred sensory benefits as well as formulator-appreciated dispersancy across categories in personal care. As a member of the HallSens™ family of emollients, it delivers a dry, lubricious, weightless feel, and its branched nature contributes to quick and easy spreadability and low tack. Its exceptional wetting and dispersancy properties make this emollient an excellent choice for mineral-based sunscreen formulations.

HallSens™ DIAS
(Diisoamyl Succinate)

HallSens™ DIAS is demonstrably sustainable while also delivering unique and impactful sensory aesthetics. It is comprised of upcycled waste and prepared via esterification using renewable succinic acid (a green alternative to synthetically derived feedstocks) and isoamyl alcohol. The patent-pending ingredient can serve as a sensory alternative to cyclomethicone, and its light aesthetic properties exceed those of other low viscosity, highly spreadable oils and emollients. Its breathable and silky, smooth feeling generates a luxurious and memorable consumer experience across categories in personal care. In addition to its sensory benefits, this unique ingredient can also serve as an effective solvent, wetting agent/dispersant, and detackifying agent.

SolaPure™ Glo
(Vegetable Oil, Simmondsia Chinensis (Jojoba) Seed Oil, Curcuma Longa (Turmeric) Root Extract)

All-natural, multifunctional emollient SolaPure™ Glo is a holistic sun care solution that leverages turmeric's benefits to improve sun protection's SPF and PFA performance, control hyperpigmentation and promote overall skin wellbeing. It can be used in any beauty formulation to provide youthful radiance and glow.

Learn more about Hallstar's areas of expertise and formulated solutions, or use our unique online tool to create your own custom formula at **www.hallstar.com.**

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