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Home & PersonalCare



Sun Care

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SunCat MTA Encapsulated Sunscreens of the Next Generation

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Sunscreen Personal Care Products

Consumers around the world are becoming more aware of the damage that sun exposure can cause to the skin, therefore protection against UV radiation has become an absolute necessity, not only in summer, where high sun protection factor (SPF) products should always be applied when sunbathing. Cosmetic formulators recognise the risks of UV damage hence why we see most of the day creams in the market today also contain low SPF.

Consumers are the driving force behind innovation in sun care. Skin feel is the key factor that affects customers choices in the sunscreen products market. High SPF protection is usually associated with heavy and oily feel that is uncomfortable, blocks pores and doesn't allow skin to breathe freely or leaves not very good looking white marks, in case physical UV blockers are used in the formulation.

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It is also very important that the products spread easily and evenly without aggregation providing thorough protection for the whole body without the need of frequent re-applying

Our partner Bio-Nest has developed a solution that answers all the consumers' needs in one product -SunCat MTA, a new generation of UV filters that gives formulators greater flexibility, more comfortable wear for the consumer and most importantly better protection against UVA & UVB light.

SunCat MTA Background of UV Filters

The sun care market is currently based around an ageing set of UV filters which are split into two distinct chemistries.

Organic filters:

Organic sunscreens absorb UV radiation by converting it to heat energy. Examples include Butyl methoxy-dibenzoylmethane, Octocrylene, Butyl methoxycinnamate.

Advantages

- Provide good skin feel
- No powdery appearance
- Give good efficacy in low concentrations

Disadvantages

- Concerns about irritancy on skin and impact on environment caused by organic sunscreens
- Narrow spectrum and some not photostable
- Need to mix various types to get broad spectrum and high SPF
- Restricted by maximum usage concentrations in many regions

Physical filters:

Physical sunscreens such as titanium dioxide and zinc oxide, absorb and scatter UV radiation.

Advantages

- Once dispersed, physical sunscreens are easy to incorporate into finished products
- Offer broad spectrum protection
- There is no need to use more than one active to gain high SPF

Disadvantages

- Difficult to formulate with if not pre-dispersed
- Leave skin appearing white
- Poor skin feel if formulated incorrectly
- Concerns about nano particles within physical sunscreens



Other challenges a formulator has when working with traditional UV filters is their compatibility with the other ingredients used in various personal care products. Different application formats (such as creams, gels and sprays) can also provide for-

mulators problems. With formulators looking to address these challenges the scope for innovation in the sun care sector is wide.

Introducing SunCat MTA, Sunscreen for the Next Generation

Bio-Nest has developed SunCat MTA, a new material that gives formulators greater flexibility and more importantly consumers better protection. SunCat MTA is an encapsulated blend of organic chemical filters that provide high UV protection, is non-irritating to the skin and is very easy to formulate with.

• Double sphere enwrapping technology

SunCat MTA is encapsulated using a specialised enwrapping technology that produces micron sized particles of sunscreen. The encapsulation process encloses a blend of three organic sunscreen actives inside a phospholipid shell which allows SunCat MTA to disperse in water without the need for additional emulsifiers or solubilisers.

The particles are designed to repel each other preventing flocculation. This results in an even coating across the skin which reduces the likelihood of gaps and consequently increases the protection against UV rays.

• Enhanced protection

SunCat MTA offers full protection over the across UVA/UVB spectrum from 280 to 400 nm. There is also a dramatic synergistic durable SPF boost from a low % Titanium Dioxide, without introducing any instability.

• Safer on the skin

Due to its large particle size SunCat MTA is unable to penetrate the skin and therefore significantly reduces the risk of irritation. The encapsulated particles are roughly 1 micron and so also elevate any fears of nanoparticles.

• Easier formulation

Since it is water dispersible, this makes SunCat MTA significantly easier to formulate with compared to traditional UV filters. It can be added to most formulation with simply stirring and is suitable for both hot and cold mix formulations

No guesswork is required as the SPF can be accurately predicted by reference to a simple formulation chart. The level of sun protection is directly proportional to the amount of SunCat MTA present and is very reliable.

SunCat MTA W%	0%	3%	5%	8%	10%	13%	15%	17%	20%
Cream base	1.63 —	21.26 ***	32.53 ***	41.1 ***	46.04 ***	46.82 ***	48.26 ***	51.89 ***	53.15 ***
Gel base	1.57 —	13.39 ***	22.54 ***	44.12 ***	51.66 ***	52.00 ***	54.02 ***	57.26 ***	72.98 ***
Cream base+3% TiO ₂ (ST-2000)	4.88 —	55.12 ***	61.34 ***	66.47 ***	68.49 ***	73.86 ***	76.23 ***	76.64 ***	80.43 ***

SunCat MTA is suitable for a wide range of sun care application and removes the need to stock a variety of different UV filters. It also offers exceptional stability both in it's neat form and in end-products.

Our partner Bio-Nest offers FREE in-vitro SPF tests for each product formulation with SunCat MTA.

Summary

• INCI:

Water, Ethylhexyl Methoxycinnamate, Octocrylene, Butyl Methoxydibenzoylmethane, Lecithin, Butylene Glycol, Phenoxyethanol

• Benefit:

A blend of full spectrum UV filters (chemical) encapsulated in phospholipids. It is the easiest and readymade solution to add a specific SPF-level protection to any cream/gel/lotion base without the hassle of mixing several UVA and UVB filter ingredients separately. It is safe on skin, easy to add to formulation (hot or cold, at any production stage). This product solves many of the issues SPF formulators face and allows to accurately predict the level of SPF in final product.



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