

A NATURAL SOLUTION FOR POWDER DISPERSIONS



Lamberti
personal care

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With consumers becoming more and more educated about the need to protect their skin, increasingly higher SPF are required against damaging effects of UVA and UVB rays. The pleasantness of the formulation itself remains a strong choice criterium for final users, but the potential environmental impact of cosmetic products has also become an important pillar in the purchase process evaluation.

These elements have led to an increase in the total amount of UV filters in sun care formulations and, lately, a rise of physical sunscreens, sometimes at the expenses of the chemical ones, has also been observed.

Increased levels of physical UV filters can have two main drawbacks: they usually come in powder form and their incorporation in high amounts can be difficult to handle in production; in addition, their presence generally makes skin feeling unpleasant.

There is therefore a new need for ingredients capable of easily dispersing powders, increasing pourability and improving the cosmetic touch of formulations.

With #RespectfulBeauty approach always in mind, taking care of environment, people and promises, Lamberti has developed Alpicare D 3 to answer all these needs.

WHAT IS ALPICARE D 3?

Alpicare D 3 is a natural polymer made from Hydroxystearic Acid, a renewable raw material, commonly used in Personal Care and Pharmaceutical sectors that, thanks to Lamberti's know-how, provides unique performances in dispersing inorganic powders.

Coming from palm-free sources, Alpicare D 3 has a Natural Origin Index of 1 (ISO 16128) and it can increase the overall formulation naturality, targeting the needs of modern consumers and formulators. Thanks to its optimal compatibility with mineral UV filters and with inorganic powders, it is therefore an ideal choice for sustainable products.

WHAT DOES ALPICARE D 3 DO?

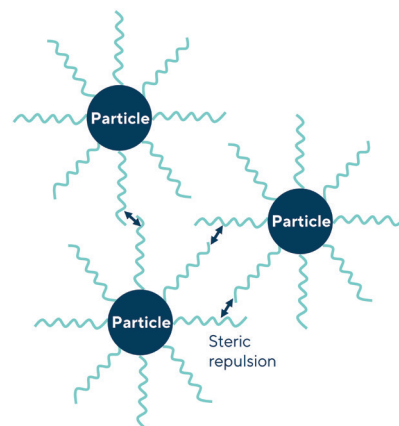
Alpicare D 3 is very effective in dispersing inorganic powders in oil-based systems, such as C12-15 Alkyl Benzoate, Castor Oil or Isohexadecane.

Even at low dosages, it can easily disperse mineral UV filters, like Zinc Oxide and Titanium Dioxide, or inorganic pigments, decreasing the viscosity of the dispersion, allowing higher inclusion levels of powders, while preventing clumping or separation.

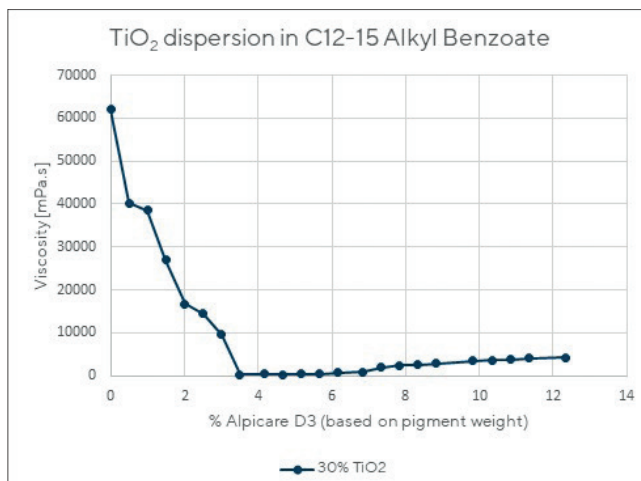
Alpicare D 3 binds to the surface of solid particles, keeping them well separated with steric repulsion, as depicted in the below image:

APPLICATIONS

Sun Care is one of the applications where Alpicare D 3 shows its main benefits. Mineral filters like Zinc Oxide and Titanium Dioxide, often difficult to incorporate, are getting increasingly used, due to their



better eco-toxicological profile compared to organic filters. As shown in the following chart, it is very effective in reducing viscosity of oil-based systems (eg. C12-15 Alkyl Benzoate) with high powder content, while preventing aggregation and precipitation phenomena.



A lower viscosity together with the right balance of cosmetic ingredients is also directly connected to a better texture, which makes products not only easier to apply on the skin, but also more appealing to end-users.

It's important to underline that a more efficient dispersion of UV filters allows not only an improved spreadability, leading to a more even layer on the skin, but also supports the overall SPF efficiency of the formulation itself.

Often, mineral sunscreens have also an aesthetical disadvantage, giving a white effect on skin upon application. Thanks to its dispersion capability, Alpicare D 3 effectively reduces this drawback, helping to avoid the so-called "ghost effect". (see Picture 1).



Picture 1. Placebo (above) vs formulation with Alpicare D 3 (below)

Alpicare D 3 enables formulators to obtain also fluid and sprayable lotions with high SPF.

HIGH PROTECTION SPF 50 LAMCOS 235

Phase	Ingredient Name	% w/w
A1	Aqua (Water)	To 100
A2	Glycerin	1.0
A3	Pentylene Glycol	2.0
A4	Acacia Senegal Gum, Xanthan Gum	0.8
B1	Diisostearyl Malate	14.0
B2	Octyldodecanol	6.0
B3	Caprylic/Capric Triglyceride	8.0
B4	Zinc Oxide	25.0
B5	Titanium Dioxide (nano), Silica, Alumina	14.0
B6	ALPICARE D 3	1.0
B7	Polyglyceryl-3 Polyricinoleate, Glycerol Oleate Citrate SE, Polyglyceryl-3 Diisostearate	4.0
B8	Sodium Stearoyl Glutamate	0.5
B9	Caprylic/Capric Triglyceride, Stearalkonium Bentonite, Propylene Carbonate	3.0
C1	Parfum (Fragrance)	q.s.
C2	Preservative	q.s.

General Characteristics - Appearance: glossy white cream; Viscosity (Brookfield RVT, 25°C, 30 rpm): ~ 30000 mPa.s; pH: ~ 7.3

Alpicare D 3 has shown also a great ability in dispersing another mineral component of personal care products: Hydroxyapatite. This solid phosphate salt is getting increasingly common in cosmetic formulations, from oral care, to sun care, to decorative cosmetics.

MINERAL MILK SPF 50 LAMCOS 236

Phase	Ingredient Name	% w/w
A1	Aqua (Water)	To 100
A2	Pentylene Glycol	2.0
A3	Acacia Senegal Gum, Xanthan Gum	0.7
A4	Polyacrylate Crosspolymer-6	0.4
B1	Diisostearyl Malate	16.0
B2	Octyldodecanol	6.0
B3	Caprylic/Capric Triglyceride	8.0
B4	Zinc Oxide	25.0
B5	Titanium Dioxide (nano), Aluminium Hydroxyde, Stearic Acid	14.2
B6	ALPICARE D 3	1.0
B7	Glycerol Citrate, Lactate, Linoleate, Oleate	3.8
B8	Sodium Stearoyl Glutamate	0.5
B5	Citric Acid, 50% soln.	2.0
C1	Parfum (Fragrance)	q.s.
C2	Preservative	q.s.

General Characteristics - Appearance: glossy white cream; Viscosity (Brookfield RVT, 25°C, 30 rpm): ~ 30000 mPa.s; pH: ~ 7.1

In decorative cosmetics Alpicare D 3 can find another important field of application for its ability in dispersing oxides and effect pigments, helping to deliver a more vivid and natural colour yield.

CONCLUSIONS

Alpicare D 3 is a new natural, versatile and highly effective polymeric dispersing agent. In line with our #RespectfulBeauty approach, it enables formulators to develop modern products with optimal sustainability profiles and excellent sensorial properties.

SUMMARY – KEY PERFORMANCES:

- Effective dispersion
- White effect reduction
- Improved spreadability

MAIN APPLICATIONS:

- Sun Care
- Decorative Cosmetics
- Oral Care

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