Isoamyl Laurate for Cosmetic Formulations

Isoamyl laurate (CAS No. 6309-51-9) is a product derived from renewable sources and readily biodegradable, marketed by Oleon under the name Jolee 7750.

It is a fatty acid ester produced by esterifying two renewable building blocks: dodecanoic acid, also known as lauric acid, and isoamyl alcohol.

Lauric acid is derived primarily from vegetable oils, especially coconut oil and palm kernel oil, in which it typically accounts for approximately 45–55% of the total fatty acids. In these natural feedstocks, lauric acid is present mainly in the form of triglycerides. Industrially, the oils are hydrolyzed to release their constituent fatty acids, which are then separated and purified, typically by fractional distillation.

Isoamyl alcohol, also known as isopentanol, generally consists predominantly of 3-methyl-1-butanol together with a smaller proportion of 2-methyl-1-butanol.
In fact, the term refers to a mixture of two isomers: 3-methyl-1-butanol and 2-methyl-1-butanol.

Isoamyl alcohol is obtained from fusel oil, a by-product of ethanol fermentation.
Fusel oil contains a mixture of alcohols, including ethanol, propanol, butanol, and isoamyl alcohol.
Fractional distillation of fusel oil produces an isoamyl alcohol fraction that remains a mixture of two isomers: 3-methyl-1-butanol and 2-methyl-1-butanol.

At Oleon, the isoamyl alcohol used to produce isoamyl esters has consistently contained more than 98 wt% of 2-methyl-1-butanol and 3-methyl-1-butanol in an average weight ratio 2-methyl-1-butanol / 3-methyl-1-butanol of 0.27.

Accordingly, **Oleon's isoamyl laurate**, which has been produced and sold since 2010, contains 2-methylbutyl laurate and 3-methylbutyl laurate, in typical proportions reflecting those of the starting alcohol.

Samples supplied by Oleon to Dr. Straetmans as early as 2007 contributed to the development of an invention relating to the solubilization of specific UV filters, subsequently disclosed in EP2421614.
From 2010 onward, Oleon marketed isoamyl laurate under the Radia 7750 brand and supplied the product to Dr. Straetmans, which marketed it under the trade name Dermofeel Sensolv.

Isoamyl laurate is primarily used as an **emollient** and **skin-conditioning agent.**
It also acts as a **sensory enhancer**.
As a low-viscosity liquid, isoamyl laurate improves the application properties of the finished product, including its **spreadability**, while enhancing the formulation's sensory profile by providing a light, non-greasy and non-sticky skin feel.

Its combination of relatively low viscosity, good spreadability and moderate polarity can improve **wetting and distribution** of pigments. This may provide better color uniformity, easier application and less agglomeration.

Reducing the soaping effect: in O/W emulsions, white streaks can appear during application because of the temporary organization of emulsifier, fatty alcohol and water structures under shear. Isoamyl laurate's fast spreading can help reduce the duration and intensity of this visible effect.

Isoamyl laurate is a saturated ester and is therefore less susceptible to oxidative rancidity than unsaturated oil compounds.

Isoamyl laurate can also be an **alternative to multiple low-viscosity linear silicones** in silicone-free formulations, particularly for fast slip, easy rub-out, smooth non sticky finish and reduced perception of oiliness.

For hair care, isoamyl laurate can act as a natural derived light conditioning agent, mostly formulated for leave-in light weight oils, light conditioning hair creams or anti-frizz serums.

Where a higher viscosity is required, isoamyl laurate may also be incorporated into structured systems. For example, EP3610846 describes combinations comprising ethyl cellulose and a liquid alcohol containing at least 36 carbon atoms.
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