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TECHNICAL DATA SHEET

Silwax® D2024

Alkyl Polydimethylsiloxane

DESCRIPTION

Siltech has developed a line of alkyl dimethicone polymers that have a range of alkyl groups present on the silicone backbone, rather than a single alkyl group. **Silwax® D2024** provides improved skin aesthetics and solubility parameters. The INCI name for this product is C20-24 Alkyl Dimethicone.

TYPICAL PROPERTIES

Appearance	Soft Wax
Melting Point, °C	35
Active Content, %	100
% Silicone, % Alkyl	40/60
MW, g/mol	2250
INCI (China) Name	C20-24 Alkyl Dimethicone
	C20-24 烷基聚二甲基硅氧烷
Water Solubility	Insoluble
Mineral Oil Solubility, 1%/10%	Soluble/ Soluble

USES AND APPLICATION

The presence of alkyl groups on the silicone molecule makes the resulting polymer more oleophilic (oil soluble). This is the salient property of the alkyl silicone polymers.

The alkyl dimethicone polymers find use in personal care products in which oils are present. This includes serums, emulsions, lotions and waxes. The specific application types are colour cosmetics, pressed powders, pigment coating, sun care products, and skin care products.

Silwax D2024 alkyl dimethicone provides the following valuable properties in the aforementioned personal care products:

Surface Activity: Alkyl silicone polymers organize themselves in oils, including non-polar oils like mineral oil, and more polar oils like esters. This organization results in a dropping of the oil's surface tension from around 32 dynes/cm to 25 dynes/cm. As the concentration of the alkyl silicone in oil is increased micelles form.

Aesthetic Modification: As the surface tension drops, the oil becomes more spreadable and silicone like. Films become more uniform. This uniformity of film is a reason why alkyl silicones work in increasing SPF in sun care.

Gellation of Esters (U.S. Patent 7,875,2631): Solid alkyl dimethicone polymers when added above their melt point will dissolve in oils. When cooled, the alkyl dimethicone again becomes solid, gelling the oil. The gel can be hard or soft depending upon the exact alkyl dimethicone utilized. When a low viscosity liquid ester is chosen the resulting gel has a buttery feel. Consequently, since partial hydrogenation is not used in the processing, cosmetic butters that are free of trans fatty acids can be achieved.

Syneresis Aides: The variety of oils and waxes used in pigmented products (lipstick, mascara and the like) are not always soluble in each other. Upon cooling, these waxes solidify and entrap oils, but often over time liquids ooze out, causing problems. Syneresis is the term used for this expulsion of a liquid from a gel. Selection of the proper alkyl dimethicone in wax blends can solubilize the waxes and oils and eliminate syneresis.

Emulsion Stability / Rheology modification: The addition of alkyl dimethicone polymers provides structure to oil phases and when the resulting oils are emulsified, a more stable emulsion results.

SAFETY

Before handling, read the Material Safety Data Sheet and container label for safe use, physical and health hazard information.

THIS MATERIAL IS NOT FOR MEDICAL OR DRUG USE.

STORAGE AND SHELF LIFE

When stored in the original, unopened containers between 10 and 40°C, **Silwax D2024** has a shelf life of 36 months from date of manufacture.

PACKAGING

Silwax D2024 copolymer is available in 18kg and 180kg containers.

LEGAL DISCLAIMER

Siltech Corporation believes that the information in this technical data sheet is an accurate description of the typical uses of the product. Siltech Corporation, however, disclaims any liability for incidental or consequential damages, which may result from the use of the product that are beyond its control. Therefore, it is the user's responsibility to thoroughly test the product in their particular application to determine its performance, efficacy and safety. Nothing contained herein is to be considered as permission or a recommendation to infringe any patent or any other intellectual property right.

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