

PLUGIN GS

NATURAL SUBSTITUTE FOR D5 SILICONE IN SKINCARE

ASSESSA

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PLUGIN GS

A NATURAL SUBSTITUTE FOR SILICONE

Silicones are very versatile materials and that's why they are widely used in cosmetics formulas. In emulsions, silicones improve spreadability, act to reduce white film formation and provide a dry and smooth sensory feel to the skin. As they are synthetic materials, some

silicones can have a significant impact on the environment, and face increasing restrictions on their use. Decamethylcyclopentasiloxane, best known as D5, is one of the most used silicones in cosmetics, but as it is considered a very persistent and very bioaccumulative sub-

stance, it has faced increasing restrictions on its use.

PLUGIN GS is a combination of special fractions of sunflower, chia and jojoba oil with a biomimetic composition similar to human skin sebum and is a natural substitute for D5 Silicone in skincare formulas.

COMPARISON OF USAGE RESTRICTIONS

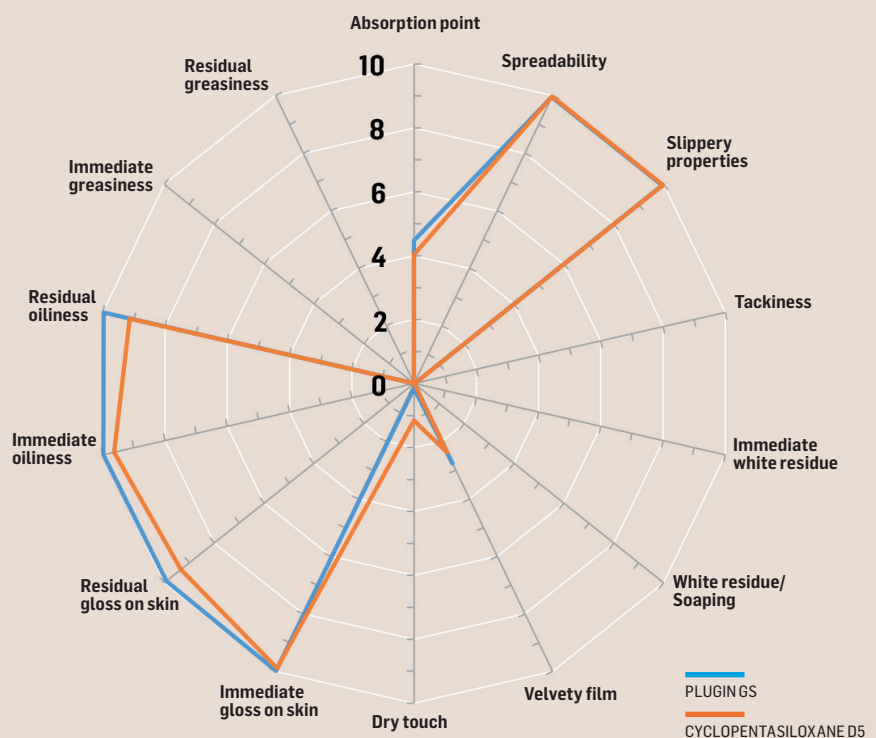
RESTRICTIONS	CYCLOPENTASILOXANE D5	PLUGIN GS
Restrictions due to environmental impacts (The Commission Regulation EU 2018/35 of 10 January 2018)	Concentration of D4 and D5 in wash-off cosmetics restricted to 0.1% after 31 January 2020. All intentional use of D4 and D5 will cease since those substances must be present in wash-off cosmetic products in a much higher concentration to perform their intended function.	No restrictions.
Restrictions due to toxicity to humans (CIR REPORT PANEL, 2015)	May contain traces of Cyclotetrasiloxane (D4) D5 purity must be above 95%. It is not safe to be used in Hair styling products and sunscreens, in the form of aerosol and pump spray.	No restrictions.



PLUGIN GS AND D5 SILICONE HAVE VERY SIMILAR ATTRIBUTES

SENSORIAL TEST

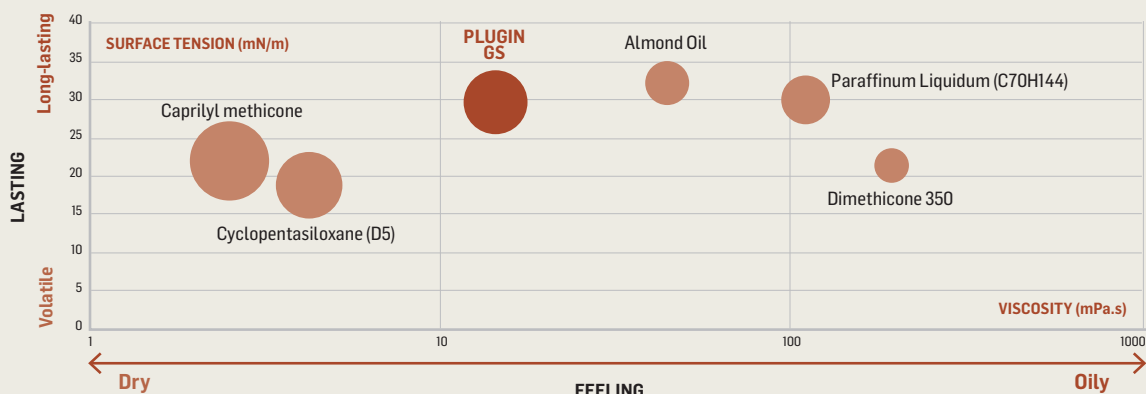
A sensory evaluation comparing 14 attributes perceived in emulsions formulated with Decamethylcyclopentasiloxane (D5) and **PLUGIN GS** was performed and the study concluded that both products have very similar attributes. **PLUGIN GS** is an excellent natural substitute for D5 Silicone.



PLUGINS

NATURAL SUBSTITUTE FOR D5 SILICONE IN SKINCARE

COMPARISON SENSORIALITY



SALVIA HISPANICA



Chia has high levels of alpha-linolenic (Omega-3) and alpha-linolenic (Omega-6), together known as Vitamin F. It is also rich in riboflavin, niacin and thiamine.

SIMMONDSIA CHINENSIS



The grease composition of **Jojoba** oil contains gondoic acid (C20 Omega 9), erucic acid (C22 Omega 9), oleic acid and nervonic acid (C24 Omega 9).

HELIANTHUS ANNUUS



The grease composition of **Sunflower** seed oil contains significant levels of linoleic acid (Omega 6 C18), oleic acid (Omega 9 C18), palmitic acid and stearic acid.

USAGE LEVELS

PRODUCT	(%)
Moisturizing cream	1.0 to 3.0
Nutritive cream	1.0 to 3.0

INCI NAMES

Salvia Hispanica (Chia) Seed Extract, Helianthus annuus (Sunflower) Seed Oil, Simmondsia Chinensis (Jojoba) Seed Oil, Isopropyl Palmitate, Hydrogenated Farnesene, Tocopheryl Acetate.

Salvia Hispanica (Chia) Seed Extract, Helianthus annuus (Sunflower) Seed Oil, Simmondsia Chinensis (Jojoba) Seed Oil, Isopropyl Palmitate, C13-15 Alkane, Tocopheryl Acetate.



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