

TECHNICAL DATA SHEET

Product Name: Cyclopentasiloxane

INCI Name: Cyclopentasiloxane

CAS: 541-02-6

Chemical Classification: Cyclic siloxane (organosilicon compound)

Functional Category: Skin and hair conditioner ~ Emollient, Solvent

IUPAC Name: Decamethylcyclopentasiloxane

Description: Cyclopentasiloxane is a colorless, highly volatile silicone fluid from the cyclic siloxane group. Chemically known as decamethylcyclopentasiloxane, it consists of five siloxane units arranged in a closed ring, with each silicon atom bonded to two methyl groups. This structure gives it an extremely low viscosity, allowing it to spread easily over skin and hair and leave a pleasant, silky feel without a greasy film. In cosmetics, it is used as an emollient, conditioner, and solvent, often appearing in products that dry quickly or leave no residue. Its volatile nature enables it to evaporate after application, improving the spreadability of a formulation and enhancing user comfort. In primers, lotions, serums, and deodorants, it provides a lightweight texture. In color cosmetics, it helps pigments and UV filters distribute evenly. While it does not provide deep hydration, Cyclopentasiloxane improves sensory feel and the visual appearance of skin, does not clog pores, and does not feel heavy. In hair care products, it helps reduce frizz, boost shine, and ease detangling. It is chemically inert, stable across a wide pH range, and compatible with various oils, waxes, and silicones.

Physical and Chemical Properties: A colorless, clear, low-viscosity fluid with a mild odor and very high volatility. Insoluble in water but miscible with oils and silicones. Boiling point: 210 °C. Viscosity: ~4–6 cSt at 25 °C. Flash point: >76 °C. Density: ~0.95 g/cm³.

Benefits:

- Enables easy spreading of cosmetic products
- Provides a silky, smooth sensation on the skin

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- Evaporates quickly, leaving no greasy residue
- Improves sensory feel and user comfort
- Does not clog pores or weigh down the skin
- Helps distribute pigments and UV filters evenly
- Boosts shine and softness in hair without adding weight
- Remains stable across a wide pH range and is compatible with most oils and silicones
- Reduces stickiness in thicker formulations

Usage: Cyclopentasiloxane is used as an oil-phase component in products requiring a light texture, quick-drying properties, and a silky feel on skin or hair. In creams, lotions, and serums, it is used at 1–10%, enhancing spreadability and after-feel. In hair care formulations such as serums and end treatments, concentrations range from 5–15%, smoothing the hair without weighing it down and adding shine. In antiperspirants and body sprays, concentrations can go up to 40% due to its volatility and non-marking finish. In color cosmetics (primers, liquid foundations), typical usage is 3–15%, ensuring even pigment distribution and smoother skin texture. For massage products or body care with a “dry touch” effect, concentrations can exceed 30% depending on desired slip and absorption rate. It can be incorporated into formulations without heating.

Animal Testing: Not tested on animals

GMO: Not GMO

Vegan: Does not contain ingredients of animal origin

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