

## 87081 Cyclomethicone D5

**INCI Name: Cyclopentasiloxane**

Description:

Cyclomethicone D5 is a volatile polydimethylcyclosiloxane composed mainly of cyclopentasiloxane.

The product is clear, tasteless, essentially odorless, non-greasy and non-stinging.

Benefits:

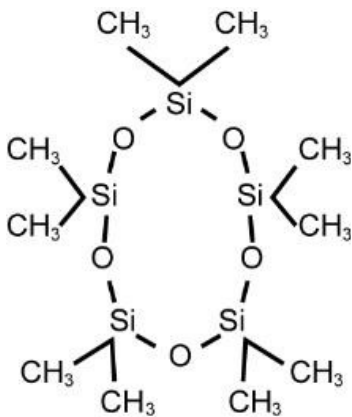
- Imparts soft silky feel to the skin
- Excellent spreading
- Leaves no oily residue or build up
- Detackification
- Non-greasy

Typical Properties:

Cyclotetrasiloxane (D4) content	< 0.1 %
Appearance	Colorless liquid
Specific gravity (25°C/77°F)	0.95
Viscosity (25°C/77°F)	4.0 mm <sup>2</sup> /s
Refractive index (25°C/77°F)	1.397
Surface tension (25°C/77°F)	18.0 mN/m
Flash point (Closed Cup)	77°C (171°F)
Freezing point	-50°C (-58°F)
Boiling point (760 mmHg)	205°C (401°F)
Water content	250 ppm

Figure 1:

Cyclopentasiloxane (D5)





Features:

- Volatile carrier
- Compatible with a wide range of cosmetic ingredients
- Low surface tension

Applications:

- A base fluid in a number of personal care products, with excellent spreading, easy rub-out and lubrication properties together with unique volatility characteristics.
- Can be used in antiperspirants, deodorants, skin creams, lotions, bath oils, suntan and shaving products, make-up, nail polishes.
- In sticks, it has the right balance between volatility and spreading.

Cyclomethicone D5 is a volatile fluid with appreciable vapor pressure at ambient temperature. Figure 2 gives typical vapor pressure vs temperature data for the fluids along with those for water and ethanol. The data given should be helpful in determining volatility range and in calculating the partial pressure of the silicone in a formulated system. By using blends of cyclomethicones this difference in volatility can be used to vary the residence time of the silicone on the skin.

Table 1 gives the heat required to vaporize one gram of each of the indicated materials.

Storage

Product should be stored at or below 25°C (77°F) in the original unopened containers.

Care should be taken when handling volatile fluids at the temperatures 10°C below the quoted flash point. As with any flammable material, containers should be kept tightly closed and away from heat, sparks, open flames, and other sources of ignition.

Limitations:

This product is neither tested nor represented as suitable for medical or pharmaceutical uses. Not intended for human injection. Not intended for food use.

Limited Warranty Information:

This information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use are beyond our control, this information should not be used in substitution for customer's tests to ensure that this product is safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

**Table 1: Heat of Vaporization**

Fluid	Heat of Vaporization (25°C / 77°F)
Cyclomethicone D4	172 kJ/kg
Cyclomethicone D5	157 kJ/kg
Water	2257 kJ/kg
Ethanol	840 kJ/kg

## Compatibility

<i>Type of Material</i>	
Water	I <sup>1</sup>
Ethanol (200 proof)	C
Glycerine	I
Octyl methoxy cinnamate	C
<i>Waxes</i>	
Stearyl alcohol	C
Beeswax	C
Paraffin wax	C
Myristyl myristate	C
Stearic acid	C
<i>Hydrocarbons</i>	
Mineral oil	C
Petrolatum	C
Isododecane	C
Isopar H	C
Polydecene	C
<i>Oils</i>	
Almond oil	C
Castor oil	I
Jojoba oil	C
Soybean oil	C
Sunflower oil	C
<i>Esters</i>	
Isopropyl myristate	C
Isopropyl palmitate	C
Octyl palmitate	C
C12-C15 Alcohol benzoate	C
Capric/caprylic triglycerides	C
Octyldodecanol	C
Oleyl alcohol	C
<i>Silicones</i>	
Dimethicone, 350 mm <sup>2</sup> /s	C
Pheyl trimethicone	C
Stearyl dimethicone	C
Cetyl dimethicone	C

<sup>1</sup>C: Compatible all ratios; I: Incompatible all ratios

Results from heating the ingredients to approximately 80°C (176°F) (care has to be taken as silicone fluid is above its flash point). All other results obtained at 25°C (77°F).

Figure 2: Vapor pressure vs temperature of volatile Silicone fluids (and several common fluids)

