

# Dow Corning® ST-Cyclomethicone 5-NF

## **BENEFITS**

### Formulation dependant

- Volatile siloxane
- Excellent spreading (low surface tension)
- Imparts soft silky feel to the skin
- Non-greasy
- Leaves no oily residue or build-up
- Detackifier
- Non-cooling on skin
- Non-stinging on skin
- Compatible with a wide range of cosmetic ingredients
- Meets monograph requirements of the National Formulary for Cyclomethicone NF

## **COMPOSITION**

- Decamethylcyclopentasiloxane (D5)t

Excipient for pharmaceutical applications

## **APPLICATIONS**

- Areas of potential use for DOW CORNING® ST-Cyclomethicone 5-NF encompass a wide range of skincare or topical delivery applications including:
- Excipient for pharmaceutical topical formulations
- Carrier for actives for a spray
- Skincare
- Suncare

## **TYPICAL PROPERTIES**

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

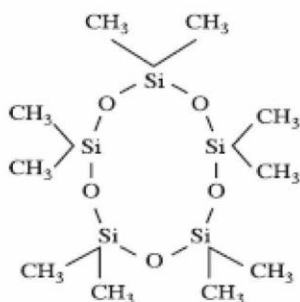
<b>Parameter</b>	<b>Unit</b>	<b>Value</b>
Appearance		Colorless liquid
Specific gravity at 25°C		0.95
Viscosity at 25°C	mm <sup>2</sup> /s	4.0
Refractive index at 25°C		1.397
Surface tension at 25°C	mN/m	18.0
Flash point – closed cup	°C	77
Freeze point	°C	<-50
Boiling point at 760mm Hg	°C	205
Water content	ppm	250
Decamethylcyclopentasiloxane (D5) content	%	>95
Octamethylcyclotetrasiloxane (D4) content	%	<1.0
Infraredidentification (match standard spectrum)		725
Chromatographic identification (match reference chromatogram)		632

## **DESCRIPTION**

DOW CORNING ST-Cyclomethicone 5-NF is a clear, colorless, volatile polydimethylcy- closiloxane composedmainly of decamethylcyclopentasiloxane.

Each batch of DOW CORNING ST-Cyclomethicone 5-NF is tested and certified to meet the current monograph requirements of the United States National Formulary for Cyclomethicone NF.

**Figure 1:**  
**Decamethylcyclopentasiloxane (D5).**



## HOW TO USE

DOW CORNING ST-Cyclomethicone 5-NF may be used alone or blended with other silicones or organic excipients to provide a fluid base for a variety of formulations.

It features good solubility in most anhydrous alcohols and in many pharmaceutical solvents.

DOW CORNING ST-Cyclomethicone 5-NF 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 the difference in volatility can be used to vary the residence time of the silicone on the skin.

Unlike other volatile carriers used in the personal care industry, volatile silicone fluids do not cool the skin when they evaporate. This is a consequence of their unusually low heat of vaporization.

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

**Table 1: Heat of vaporization**

Fluid	Heat of Vaporization 25°C (77°F) (kJ/kg)
DOW CORNING ST-Cyclomethicone 5-NF	157
Water	2257
Ethanol	840
DOW CORNING® Q7-9180 Fluid (0.65 cSt)	192

## REGULATORY INFORMATION

DOW CORNING ST-Cyclomethicone 5-NF is tested and packaged\* under strict quality control guidelines at the Healthcare Industries Materials Site (Hemlock, MI). The Healthcare Industries Materials Site is dedicated to the production of silicone materials for healthcare applications. It is registered with the United States Food and Drug Administration (FDA) as a drug establishment (CFN 1816403). The site quality system for pharmaceutical excipients utilizes principles of current Good Manufacturing Practices for Bulk Pharmaceutical Products. The site is also ISO registered by BSI.

DOW CORNING can provide a technical file based on Drug Master File Format to save you cost on testing and to accelerate your registration process.

This product does not contain any animal or vegetable derived ingredients.

\*The 199.5kg drums are not packaged at Hemlock.

## HANDLING PRECAUTIONS

Do not handle DOW CORNING ST-Cyclomethicone 5-NF at temperatures above 77°C.

As with any combustible material, containers should be kept tightly closed and away from heat, sparks, open flames and other sources of ignition.

Product safety information required for safe use is not included. Before handling, read product and safety data sheets and container labels for safe use, physical and health hazard information. The material safety data sheet is available on the Dow Corning website at [www.dowcorning.com](http://www.dowcorning.com). You can also obtain a copy from your local Dow Corning sales representative or Distributor or by calling your local Dow Corning Global Connection.

## USABLE LIFE AND STORAGE

When store date or below 25°C in the original unopened containers, this product has a usable life of 30 months from the date of production.

DOW CORNING ST-Cyclomethicone 5-NF should be stored above -45°C.

If the material does freeze on no account should a naked flame be used to melt the product.

## PACKAGING INFORMATION

This product is supplied in 0.425kg bottles, 15kg pails and 199.5kg drums.

Samples are available in 0.425kg bottles.

## **HEALTH AND ENVIRONMENTAL INFORMATION**

To support Customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For further information, please see our website, [www.dowcorning.com](http://www.dowcorning.com) or consult your local Dow Corning representative.

## **WARRANTY INFORMATION**

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

Dow Corning's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

**DOW CORNING SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.**

**DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

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**Table 2. Compatibility of DOW CORNING ST-Cyclomethicone 5-NF**

<b>Type of material</b>	
Water	Non-miscible
Ethanol 200 proof	Non-miscible
Glycerine	Non-miscible
Octyl methoxycinnamate	Miscible
<b>Waxes*</b>	
Stearyl alcohol*	Miscible
Beeswax*	Miscible
Paraffin wax*	Miscible
Myristyl myristate	Miscible
Stearic acid	Miscible
<b>Hydrocarbons</b>	
Mineral oil	Miscible
Petrolatum	Miscible
Isododecane	Miscible
Isopar H	Miscible
Polydecene	Miscible
<b>Oils</b>	
Almond oil	Miscible
Castor oil	Non-miscible
Jobba oil	Miscible
Soybean oil	Miscible
Sunflower oil	Miscible
<b>Esters</b>	
Isopropyl myristate	Miscible
Isopropyl palmitate	Miscible
Octyl palmitate	Miscible
C12-C15 Alcohol benzoate	Miscible
Capric/caprylic triglycerides	Miscible
Octyldodecano	Miscible
Oleyl alcohol	Miscible
<b>Silicones</b>	
DOW CORNING® Q7-9120 Silicone fluid, 350 cSt	Miscible
Phenyl trimethicone	Miscible
Stearyl dimethicone	Miscible
Cetyl dimethicone	Miscible

\* 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).

