Technical Data Sheet

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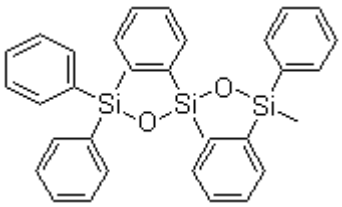
Silfluo LS-653

Phenyl Siloxane

Description:

Silfluo LS-653 is 1,3,5-Trimethyl-1,1,3,5,5-pentaphenyltrisiloxane, a pentaphenyl-modified trisiloxane fluid. The molecule contains five phenyl groups and three methyl groups on a linear three-unit Si–O backbone. Higher phenyl content relative to LS-644 (tetraphenyl) gives a lower vapor pressure and higher boiling point, extending the achievable vacuum range.
Used as working fluid in ultra-high-vacuum diffusion pumps, and as heat transfer or dielectric base fluid in high-temperature or radiation-exposed environments.
Performance equivalent to Dow DC-705 and Shin-Etsu HIVAC-F5.

Typical Technical Properties

Silfluo Code:	LS-653
Chemical Name:	1,1,3,5,5-Pentaphenyl-1,3,5-trimethyltrisiloxane
Synonyms:	1,3,5-Trimethyl-1,1,3,5,5-pentaphenyltrisiloxane
CAS No. :	3390-61-2
EINECS No. :	222-222-9
Molecular Formula:	$C_{33}H_{34}O_2Si_3$
Molecular Weight:	546.88
Appearance:	Colorless transparent liquid
Purity (by GC, %):	98.0 min
Density (25°C):	1.09
Refractive Index (nD 25°C):	1.58
Boiling Point:	245°C(0.5mmHg)
Flash Point:	243°C
Chemical Structure:	

Applications:

1. Ultra-high-vacuum diffusion pumps

Used as working fluid in UHV diffusion pumps for electron microscopes, mass spectrometers, and particle accelerators.

2. Space simulation and aerospace vacuum systems

Used in large-scale space simulation chambers and vacuum metallurgy systems during high-temperature thermal cycling and degassing.

3. Semiconductor and display thin-film deposition

Used in PVD.CVD sputtering and thermal evaporation vacuum chambers for optical coating, semiconductor, and OLED panel manufacturing.

4. High-temperature heat transfer and dielectric fluids

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Used as heat transfer fluid and dielectric coolant in electronic modules and instruments under severe thermal or radiation exposure.

Property	LS-644 (D4Ph analog)	LS-653 (DC-705 analog)
Phenyl groups	4	5
Molecular weight	484.82	546.88
Boiling point	215°C	245°C / 0.5 mmHg
Flash point	221°C	243°C
Refractive index	1.559	1.58
Vacuum range	High vacuum	Ultra-high vacuum
Equivalent reference	Dow DC-704 / Shin-Etsu HIVAC-F4	Dow DC-705 / Shin-Etsu HIVAC-F5

Packing

In 1kg fluorinated bottle, 25kg pail and 200kg drum.

Safety and Storage

Keep in a cool, dry, and well-ventilated environment, strictly avoiding direct sunlight, heat, and ignition sources. The shelf life is 12 months from the date of manufacture when stored in original unopened containers. Classified as a non-hazardous substance for transport and handling. Storage beyond the shelf life does not necessarily mean the product is unusable; however, the properties required for the intended use must be thoroughly checked for quality assurance reasons prior to application.

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