



PTFE/Silicone Septa Vial Sealing Materials

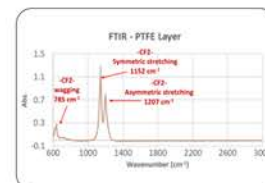
PTFE/Silicone Rubber Laminated Septum

In pharmaceutical, life science, and analytical laboratories, vial sealing materials play a critical role in ensuring sample integrity and maintaining the accuracy of experimental results. ESONE PTFE/Silicone composite septa are high-performance sealing materials specifically developed to meet these stringent requirements.

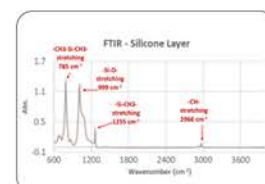
Structure and Working Principle

ESONE septa feature a **two-layer composite construction**:

● **PTFE film layer**: Provides excellent chemical inertness and solvent resistance, ensuring the sample only contacts inert material and minimizing contamination risks. For PTFE, the characteristic peaks in the approximately 1150 and 1205 cm^{-1}



● **Silicone elastomer layer**: Delivers outstanding elasticity and resealability. After syringe penetration, the septa reseal immediately, maintaining vial integrity. This unique structure offers a robust chemical barrier while enabling reliable resealing during multiple sampling operations. For Silicone, typical FTIR spectra corresponding to a C-H band for Si-CH₃ at 1255 cm^{-1} , Si-O-Si band at 1092 and 1023 cm^{-1} , Si-C from Si-CH₃ at 864 and C-H (CH₃) at 800 cm^{-1} .



Key Features

- **Excellent resealability**: Maintains a tight seal even after multiple punctures.
- **High PTFE/silicone bond strength**: Long-term stability without delamination.
- **Broad temperature resistance**: -40 °C to +220 °C (-40 °F ~ 428 °F), suitable for cold-chain and high-temperature environments.
- **Outstanding chemical resistance**: Compatible with a wide range of solvents and reagents.
- **Consistent silicone hardness (durometer)**: Ensures controlled needle penetration and enhances product durability.

Applications

- **Pharmaceutical and life sciences**: Secure vial sealing to prevent external contamination.
- **Chromatographic research (GC, HPLC, MS)**: Low background noise and extractables, ensuring accurate test results.
- **Scientific and industrial experiments**: Suitable for environments demanding purity and high chemical resistance.

PTFE/Silicone Laminated Materials Properties

Model Name	Film Thickness mm(mil)	Silicone Thickness mm(mil)	Tensile Strength MPa	Silicone Hardness Shore A	Color	Description
ESLAM SEP1	0.075(3)	0.5(20)	6	30, 40	Red/White	PTFE Film/ Silicone Rubber
ESLAM SEP2	0.075(3)	1.0(40)	6	30, 40	Red/White	PTFE Film/ Silicone Rubber
ESLAM SEP3	0.13(5)	1.0(40)	6	30, 40	Red/White	PTFE Film/ Silicone Rubber
ESLAM SEP4	0.13(5)	3.0(120)	6	30, 40	Red/White	PTFE Film/ Silicone Rubber



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