

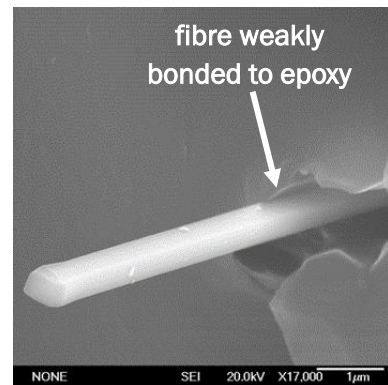


F80.FS1

1% F80 Silicon Nitride Fibre in Epoxy Composite

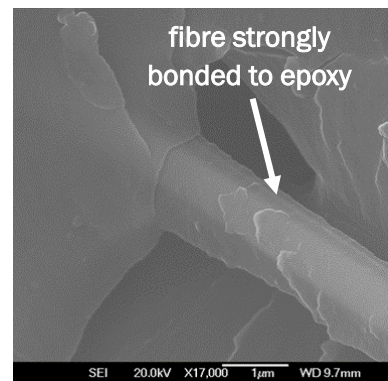
1 November 2016

F80.FS1 is a surface-modified version of Nuenz’s standard F80 silicon nitride ceramic fibre product. F80.FS1 has been incorporated into a commercial two-part epoxy resin and the mechanical properties evaluated. The surface functionalisation of the fibres facilitated strong fibre–epoxy bonding, improved fibre dispersion and improved adhesion of epoxy to the fibres. The resulting composite material using F80.FS1 fibre demonstrated superior mechanical properties, such as hardness and tensile strength when compared to both standard epoxy and standard F80 silicon nitride fibre.



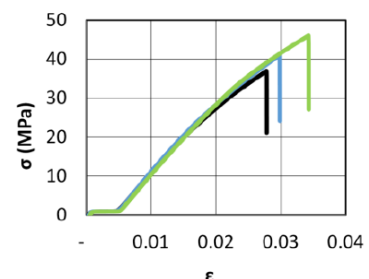
Standard F80 Silicon Nitride Fibre in epoxy resin

	Epoxy	+1% F80	+1% F80.SF1
Viscosity (cps)	1040	1000	915
Shore Hardness D ASTM D2240	80.4 ± 0.4	82.5 ± 0.3	84.5 ± 0.3
Tensile Strength % Increase ASTM D3039	-	33%	62%



F80.FS1 in epoxy resin showing improved fibre-resin adhesion

Nuenz is now looking for partners who are interested in exploring opportunities for epoxy composites or would like to explore other opportunities for functionalised nanocomposites in other resin systems.



Stress-strain curve for **Epoxy**, **Epoxy + 1% F80**, and **Epoxy + 1% F80.SF1**