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SUMMER WORK/MOTIVATION

To uniformly disperse Carbon Nanotubes in two Resins

- SC-15 Epoxy
- Vinyl Ester

To test mechanical properties of a shear bonds of SC-15 Epoxy

- With various concentrations of carbon nanotubes
- Without carbon nanotubes

Design and Implementation of Test for Mechanical Properties

APPROACH TO DISPERSING NANOTUBES

Key Components

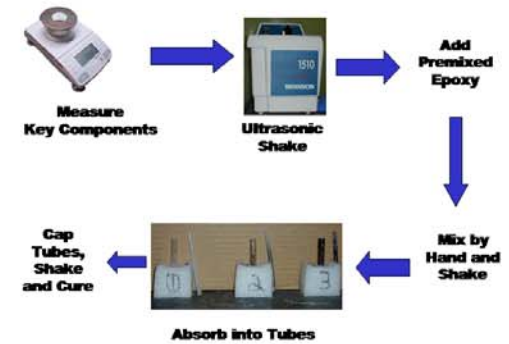
- Carbon Nanotubes, Acetone, Surfactant (C28H58O9), Unknown dispersing liquid offered by Company

Resins

- SC-15 Epoxy, Two Part Epoxy Resin
- Vinyl Ester, C50



EXPERIMENTAL PROCEDURE



EXPERIMENTAL PROCEDURE



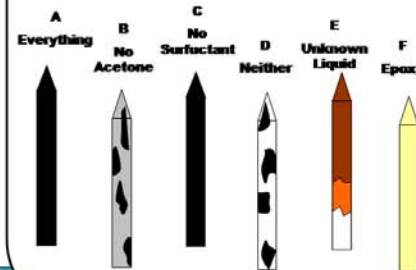
Dispersion can be observed by eye

Tip of Cylinder can be observed by TEM for Dispersion on the nanoscale

DISPERSION SAMPLES USING EPOXY RESIN

	Sample					
	A	B	C	D	E	F
CNT's	22-25 mg	22-25 mg	22-25 mg	22-25 mg	22-25 mg	
Surfactant	20 mg	21 mg				
Acetone	500 mg		500 mg			
SC-15 Part A	2.3 g	2.3 g	2.3 g	2.3 g	2.3 g	2.3 g
SC-15 Part B						
Unknown Liquid					1-2 Drops	

EPOXY DISPERSION CONCLUSIONS



EPOXY DISPERSION CONCLUSIONS

- ♦ Acetone and Surfactant helps dispersion
- ♦ Acetone slows curing time in Epoxy Resin
- ♦ Unknown liquid from the company has no effect on Dispersion