

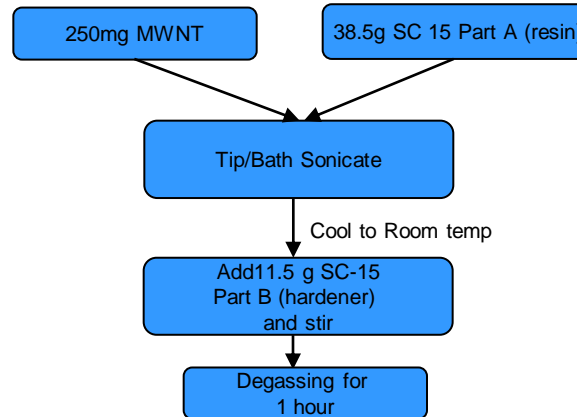
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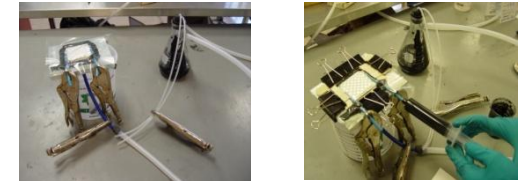
## ABSTRACT

- ◆ Premature failure can occur due to delamination or matrix cracking in the resin rich areas between the fabric layers in composites
- ◆ Interlaminar shear strength (ILSS) can be improved by introducing Multi wall Carbon nanotube (MWCNT) to toughen the epoxy matrix
- ◆ A suspension of epoxy containing well dispersed MWCNT was prepared by combining techniques of high speed mechanical stirring and ultrasonic agitation.
- ◆ Compression shear tests were conducted on the manufactured samples to determine ILSS.
- ◆ The influence of method of suspension preparation, viscosity increase due to the addition of MWCNT and processing methodology on ILSS were studied.

## SUSPENSION PREPARATION



## MANUFACTURING

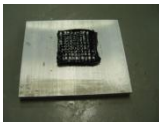


Bag and Preform Relaxation



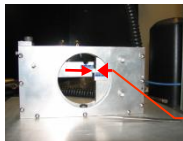
Set up placed inside bell jar with higher vacuum

## SAMPLE



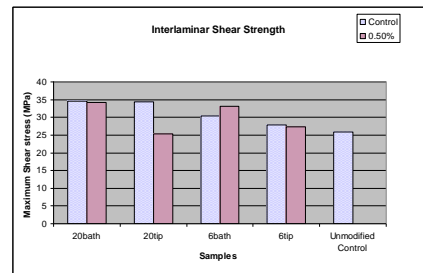
## CHARACTERIZATION

Shear test fixture



Thickness Direction

## RESULTS



## DISCUSSION

- CNT modified resin enhances ILSS when compared with unmodified resin not taken through the preparation steps
- When un modified epoxy was made to go through same processing history as CNT loaded resin, there is no apparent improvement
- 25% Improvement in ILSS is obtained by varying the preparation history of epoxy without CNT
- Possible explanation is the physical action played by ultrasonic agitation
- Rise in local temperature & acceleration of molecular movement in the resin system due to ultrasonic agitation influences ILSS

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