

Discontinuous fiber breakout session

AMTAS Spring Meeting, March 20, 2008

Participants

- Larry Ilcewicz & Patrick Stickler
- Kevin Marshall
- Randy Coggeshall
- Mark Tuttle
- Paolo Feraboli
- Emmanuel Domingo
- Dodd Grande
- Timothy Briggs

Discontinuous fiber breakout session

AMTAS Spring Meeting, March 20, 2008

Background

- Strong Boeing thrust
- Hexcel collaboration but open to other
- Safety and certification focus
- John Halpin has been involved in discussion
- TSO approach

Discontinuous fiber breakout session

AMTAS Spring Meeting, March 20, 2008

M&P Quality control

Mechanics/ Structural Substantiation

Hybridization with continuous fiber forms

Strategy

Discontinuous fiber breakout session

AMTAS Spring Meeting, March 20, 2008

M&P Quality control YI & II

- Raw material - Areal weight, chip distribution
- Charge design
- Material flow
- QC test for FOD-type indentation
- Curing details (ramp rate, moisture before and during cure?)

Discontinuous fiber breakout session

AMTAS Spring Meeting, March 20, 2008

Mechanics/ Structural substantiation YI, II, III

- Analysis methods
- Failure prediction
- Test methods
- Full-field strain measurements
- Size issues – extraction of coupons from actual parts
- Element-level testing
- Static/ fatigue
- Optimization

Discontinuous fiber breakout session

AMTAS Spring Meeting, March 20, 2008

Hybridization w/ continuous fiber forms YIII, IV

- Large structure characterization (Circumferential frame?)
- Bolted joint pad-up
- “Toughening layer” in a skin
- I-joist web for shear

Discontinuous fiber breakout session

AMTAS Spring Meeting, March 20, 2008

Strategy

- Draft TSO (YII)
- Draft AC (YIII, IV)
- Final case study – show applicability of entire process (allowables, methods, TSO certification, etc..)