

AMTAS Bonding Industry Feedback

Sessions II and III

October 27, 2016

Will Grace and Ashley Tracey
Boeing

AMTAS Bonding Industry Feedback Session II

10/27/16

- Improving Adhesive Bonding of Composites through Surface Characterization – Johnson and Flinn

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- Improving Adhesive Bonding of Composites through Surface Characterization – Johnson and Flinn, UW

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- Development and Evaluation of Environmental Durability Test Methods for Composite Bonded Joints – McCartin/Adams, U of U

Feedback Comments:

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- Effect of Surface Contamination on Composite Bond Integrity and Durability – McDaniel, FIU

Feedback Comments:

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- Durability of Adhesively Bonded Aerospace Structure – Smith, Wash State U

Feedback Comments:

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- Evaluation of Notch Sensitivity of Composite Sandwich Structures – Stanfield/Adams, U of U

Feedback Comments:

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- Effects of Moisture Diffusion in Sandwich Composites – Tuttle, UW

Feedback Comments:

AMTAS Bonding Industry Feedback Session 11/1/11

Alan Pritchard – Standard Characterization for a surface prepared for adhesive bonding – is water the right contact angle media. Shouldn't we have a recognized test that we all agree is valid.

Dave Trop - Where's the correlation that water is valid to correlate bondability with polymers.

Kay B. – key is to find a fluid or test method that differentiates between good and bad surface preps.

Dave T. – key is to have the bondment be insensitive to contaminants.

Gerry Mabson – want reliability. How do I know I don't have a kissing bond. If we have assurance that the bonds are reliably a certain strength, then we can design to it.

Arne Lewis – repairs in service – how to do a repair in a repair environment where it's humid and contaminants are flying around in the air.

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Thomas Probianac – What surface preparation should be used – peel ply – standardize.

Hamid Razi – Inspections – what inspection is appropriate to know the bondline is ...

Brian Flinn – Not sure FAA is up for funding holy grail bond strength inspection.

Mark Tuttle – holy grail is an adhesive that displaces oils and contaminants.

Larry Ilcewicz – Connections to other organizations are good – general discussion about the problems are good. Focus on the 3 projects that are in place and make sure they're accurate and issues are being addressed (like the G1c values in Thomas' presentation).

Gerry Mabsen – If we're going to have a bond – and it's better than all the other interfaces – then you can say it isn't more important than the other interfaces. We try to design the bondline out.

Nona Larson – truck industry – bonds are designed to be taken apart and put back together, but still be good enough not to fail in service.

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Kay – less than perfect bonds – interfacial failure modes not predictable

Nona – maybe it's time to go with an adhesive that will stick to anything, and not try to make it so good.

Buck Cargill – You have to be able to measure it. Measure something where we have the spatial res and the data rate that we have an in-situ properties robust contact angle large wing stabilizer data rate not there proceed through industrially relevant productivity scanning tool probe spatial res know what I've got when I go to bond.

Kay - More durable adhesive systems

Hamid – Look at adhesives that are less sensitive to the

Mark – contamination resistant adhesives might be the thing to pursue.

Gary Oakes – don't lose sight of the other requirements that adhesives have – flame, smoke, tox, etc.