Lucy Eggleston, Sustainability Research Engineer
Sustainable Composites is a partnership between industry, academia and government that brings together the UK’s composites expertise to quickly turn research breakthroughs into industrial applications.
The aim:

To transform the UK’s world leading composites end of life academic and commercial capabilities into a fully functioning and interconnected supply chain.
The journey

- Multi-materials & Sustainability Team
- Capability Development
- Sustainable Composites Initiative
- Bio Bolster
- ReDisCoveR
- Dismantlable Joints
- Steam to Value Stream
- Future opportunities
Increasing the NCC’s ability to deliver impactful sustainable composites research and development
The journey

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Dismantlable Joints was part of the 2019/20 NCC Technology Pull-through Programme with Oxford Brookes University. Its primary aim was to increase the technology readiness level of disbondable adhesives.

### The Challenge
- Structural adhesives are high strength and irreversible in nature

### The Solution
- Adhesives containing additives that are triggered by external stimuli

### The Benefits
- Innovation in repair and modifications, as well as more efficient disassembly at end of life

#### Bond strength testing
1. Disbond of sample joined using ET536 +10wt% EG (heat gun)

#### Usability investigation
2. Cohesive joint disbond caused by activation of different additives within two structural adhesives

#### Durability assessment
3. Self-destructing glue solves a sticky environmental problem

#### Heat source validation
4. Disbond of sample joined using ET536 +10wt% EG (heat gun)

#### Technology demonstration
5. Disbond of sample joined using ET536 +10wt% EG (heat gun)
To ensure the next generation of composite materials, designs and products support net zero ambitions, securing the UK’s position as a world leader in sustainable composites.

Mission:

- Develop our internal capability
- Develop toolsets for industry
- Co-ordinate national partnerships
- Accelerate funding opportunities

DISSEMINATE THE MESSAGE!
Multi-materials & Sustainability Team

Capability Development

Sustainable Composites Initiative

Bio Bolster

Future opportunities
Steam to Value Stream

Investigate and demonstrate methods for improving the maturity of fibre and matrix reclamation

1. Identify waste
2. Reclaim material
3. Reprocess material
4. Create new parts

KEY DRIVERS
1. Increasing volumes of composite waste
2. Limited current end of life solutions
3. Legislation and regulation
4. Opportunity for value gain

OUTCOME
1. Better understand the environmental impact of recycling
2. Interrogate and articulate the business case for recycling
3. Create demonstrators using recyclate
The journey

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Validate and showcase the use of bio-based resins for high volume and high value manufacture

**KEY DRIVERS**

1. Increasing appetite from industry
2. Reducing environmental impact
3. Societal pressure, legislation & regulation
4. Diversifying feedstock options

**OUTCOME**

1. Environmental impact of using bio-resins
2. Demonstrator using bio-resins
3. Business case for bio-resins
4. Identification of future opportunities
Future opportunities

We want to grow the sustainable composites network, engage with you and...

- Support innovative projects
- Offer industrial supervisors for students
- Build collaborative R&D consortia
- Provide STEM opportunities

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Thank you for your time

Any questions?