

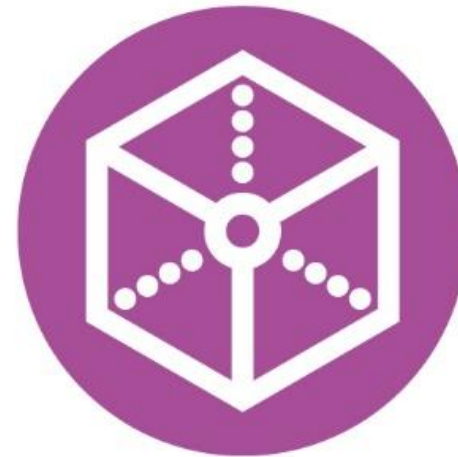


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European Union  
European Regional  
Development Fund

# AMCASH



Advanced Materials Characterisation and Simulation Hub

Mike Small, Business Engagement Manager

# How can AMCASH support your SME?

Improve or refresh your product range

Access new markets with your products

Improve quality

Reduce your costs

Develop new supply chains

Gain access to fully funded support  
– no financial outlay



SMEs in the local Enterprise Partnership (LEP) areas of:

- Black Country
- Coventry & Warwickshire
- Greater Birmingham & Solihull
- The Marches
- Stoke & Staffordshire

Turnover ≤ €50 mill, balance sheet ≤ €43 mill, < 250 employees



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# AMCASH support across materials and sectors

Support throughout the product development process

Materials expertise includes metals, ceramics, plastics, composites

Short-term, high impact engagements

Collaborative projects with the University of Birmingham

AMCASH Fully Funded support available until 2023



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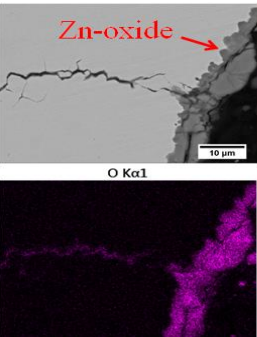
# How does AMCASH support SMEs?

Technical support from a team of Research Fellows covering the different technology areas

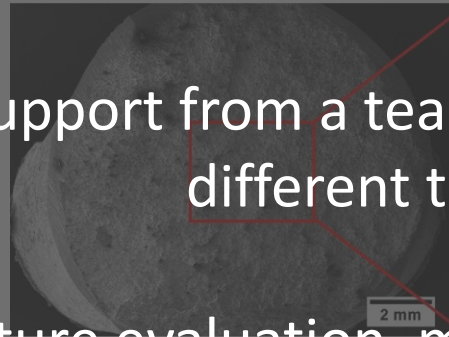
Microstructure evaluation, mechanical testing, thermal analysis

Modelling and simulation for testing and trialling of new product ideas

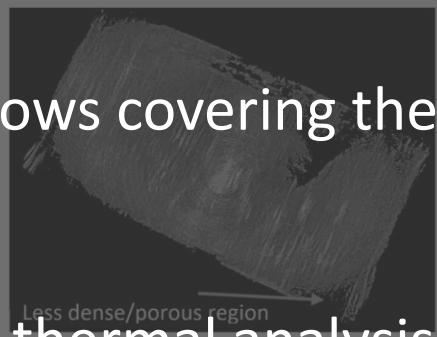
Minimum 2-day assists



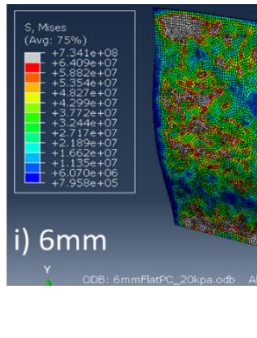
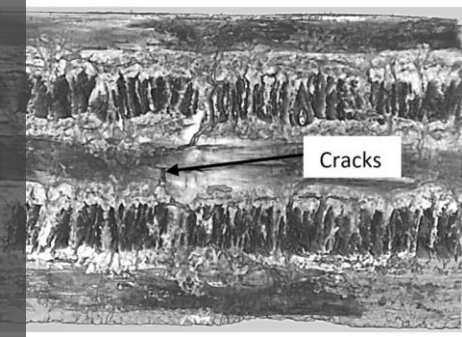
EDS analysis to investigate screw failure



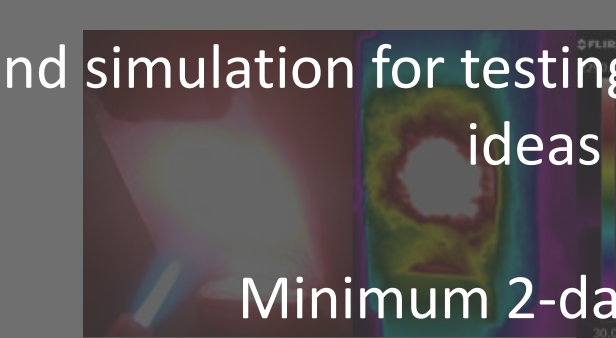
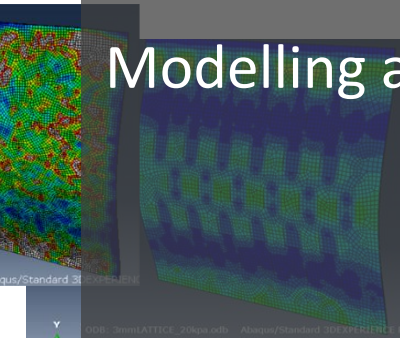
Metal: SEM analysis of fracture surface



Ceramic: Density distribution and fracture mode



FE Modelling: static and dynamic stresses with different materials



Ceramic: Thermal ablation test and characterization



Polymer: Assessing melting temperature ranges for processing



Polymer: Degradation, leading to product failure

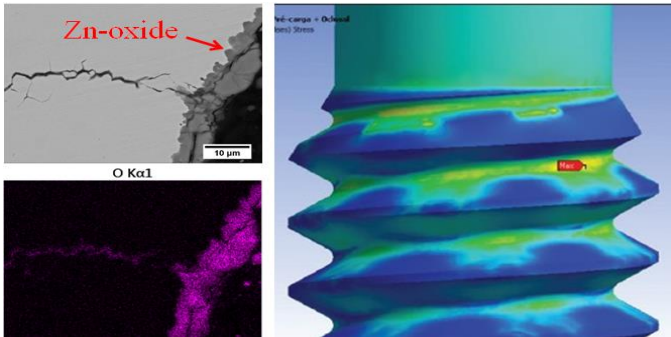


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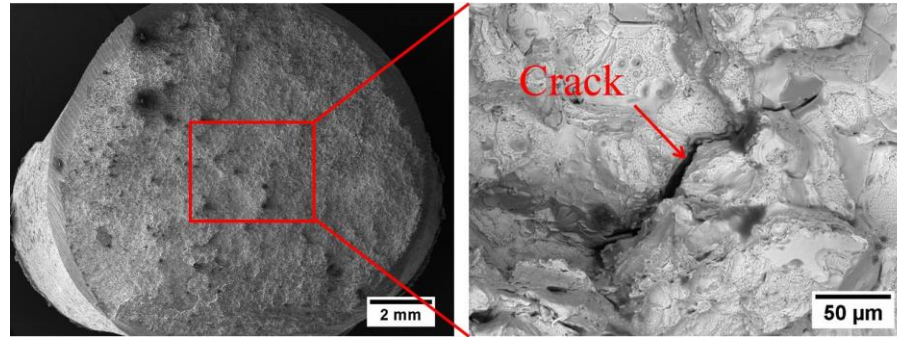


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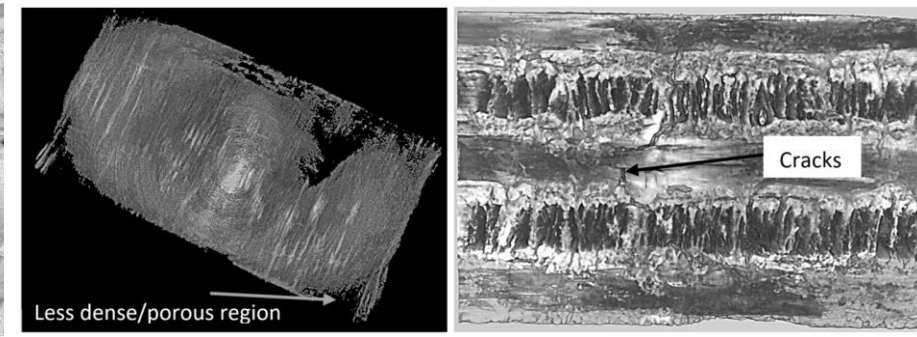
# How does AMCASH support SMEs?



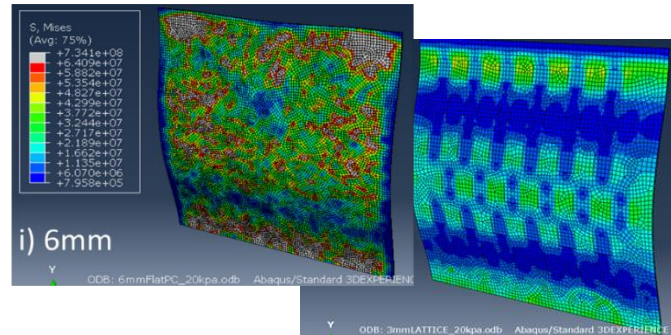
*EDS analysis to investigate screw failure*



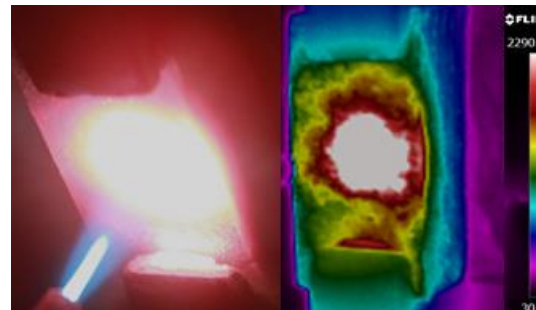
*Metal: SEM analysis of fracture surface*



*Ceramic: Density distribution and fracture mode*



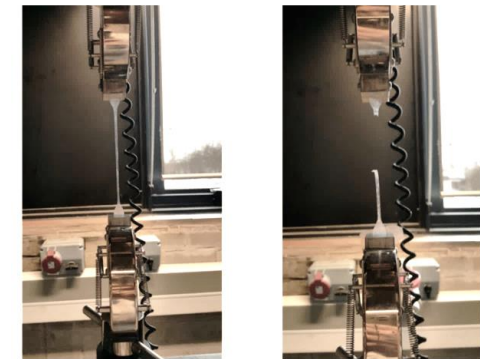
*FE Modelling: static and dynamic stresses with different materials*



*Ceramic: Thermal ablation test and characterization*

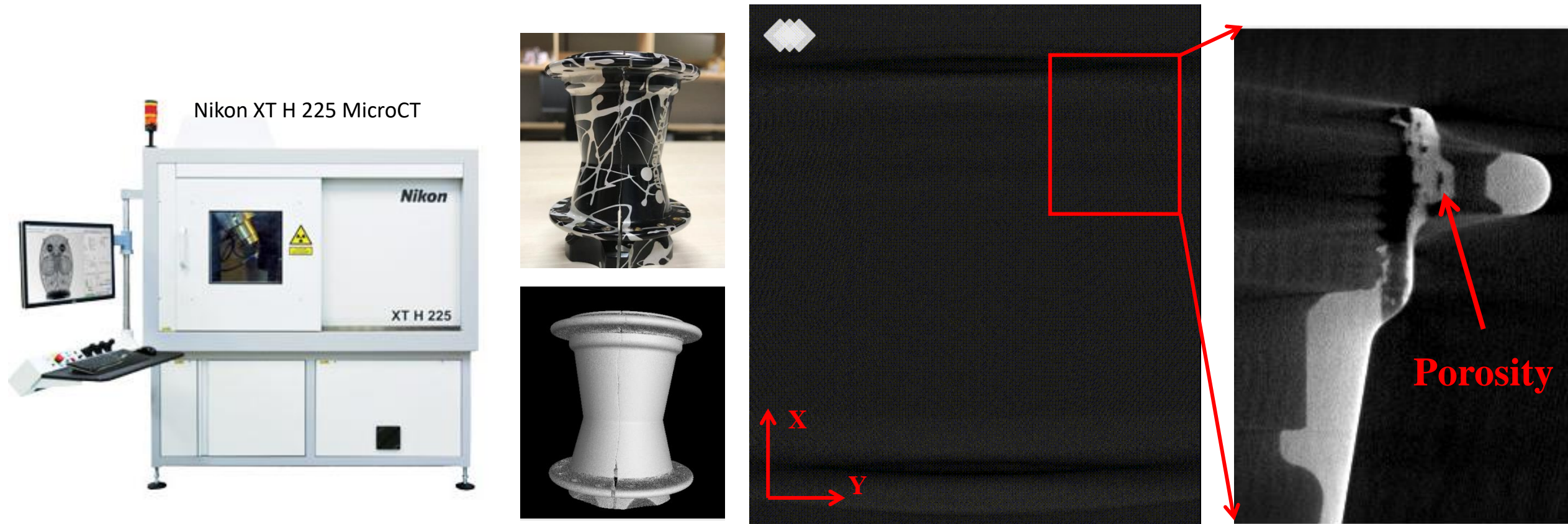


*Polymer: Assessing melting temperature ranges for processing*



*Polymer: Degradation, leading to product failure*

# Finding sub-surface cracks using MicroCT Tomography



*3D reconstruction of a cast aluminum component*



# AMCASH is supporting SMEs to towards sustainability

Advice on **how to recycle** waste materials

Researching & Proposing **possible products** that can be made

Advice on **switching raw materials** to more recyclable / biodegradable materials

Advice on **using** recycled content

**Sourcing** British suppliers and manufacturers



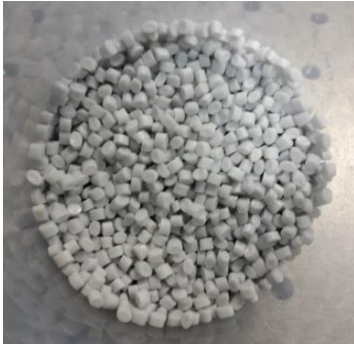
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# Waste Streams: Identification & Processing



**Identification of plastics waste streams**



*Infrared spectroscopy*



*Hot Press*

**Processing of waste materials**



*Differential Scanning Calorimetry (DSC)*



*Rheology*



**Mechanical testing of new products**





# AMCASH case study

New products from recycled bicycle tyres and inner tubes



## The Challenge for *Velorim Ltd*

Understand the potential of this valuable waste stream; evaluate potential products.

## What AMCASH did

Identified tyre content. Determined the properties of materials produced from recycled material

## Outcomes

AMCASH has worked with *Velorim* to develop a range of products – *Velo-Butylene™*, *Velo-SBR™*, *Velo-Fibre™*



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## AMCASH case study

### Re-use of foundry waste



**AMCASH** and **ARLI** SME support projects working with the **Cast Metals Federation** and its members

#### Objectives

Develop applications for spent foundry waste – sand and investment casting shell material

#### Proposed Benefits

*Increased* energy and resource efficiency - circularity

*Reduced* CO<sub>2</sub>, landfill, costs

Policy development



# AMCASH



Advanced Materials  
Characterisation and  
Simulation Hub

Join the 300 West Midlands-based SMEs who have benefitted from AMCASH fully funded materials support.

Please get in touch to discuss how we can support you.

Contact the AMCASH Business Engagement team

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[www.amcash.co.uk](http://www.amcash.co.uk)

