



BIOCOMPOSITES – evolving FR capabilities for transport applications:

At a glance: Biocomposites - where the resin and/or reinforcing fibre are from biological sources - are of interest because they are lightweight and sustainable.

The FRBioComp project aims to produce biocomposite materials with fire retardant qualities for use in construction and mass transportation applications.

This Technology Strategy Board-funded project embraces companies active in natural materials - NetComposites, Sam Weller & Sons, Exel Composites, Drake Extrusions and Tilsatec - and the expertise of the University of Bolton.

Challenge: Vehicle construction materials need to be fire retardant to prevent fire spread and maximise escape time.

Due to their combustible resins or reinforcing fibres, nearly all biocomposites

are combustible. This is a significant barrier to wider application of these materials.

Approach: FRBioComp is investigating intrinsically fire retardant biobase materials (such as polyfurfuryl alcohol resins) and treating fibres/fabrics or matrix polymer resins with environmentally friendly flame retardants.

Different methodologies for continuous treatments of fibres/fabrics and/or resins with flame retardants are being explored.

Fire retardant biopolymer fibres incorporating synergistic flame retardants and polymer layered silicates are also being developed. These fibres will be commingled with natural fibres, woven into fabrics and subsequently processed into composites.

Benefits: Biocomposites' weight-saving is key in transport applications, through reduced emissions, track wear (rail vehicles) and stopping distances. Lightweight panels allow for faster

buildings construction. Inherent fire retardance is essential to prevent injury/loss of life.

KCMC Support: The project utilises equipment purchased with the initial KCMC grant and the KCMC provided support during the proposal process.

Timeline: The three-year FRBioComp project is scheduled to complete in October 2014.