

Interreg

France-Wallonie-Vlaanderen



UNION EUROPÉENNE
EUROPESE UNIE

RECY-COMPOSITE

Recycling of composite material: a cross-border approach towards a circular economy



Technology and product development for recycling of
composite materials

Composites

- Very divers applications:
 - Transport (automotive and rail)
 - Sports and leisure
 - Building
 - Sanitation
 - Wind energy
 - Avionics

Composites

- World market for composites is estimated at 8.5 Mio Ton in 2014.
- In Europe the production is estimated at 2.2 Mio Ton of which
 - 1.043 kTons glass fibre reinforced thermoset (43 en 108 kTons in. Benelux and France)
 - 1.160 kTons short fibre reinforced thermoplastics.
- Carbon fibre composites represent a smaller part which is estimated at 94 kTons.

Recy-Composite

- Applied research project
- Goal: provide an answer to the composite challenges
 - Mechanical recycling
 - Chemical recycling (pyrolysis and solvolysis)
 - Energy recovery (only if other options fail)
- Within a cross-border European context.
- Timeframe: 2016 - 2020

Cooperation

- Certech – Project leader (Wallonia)
- VKC-Centexbel (Flanders)
- Crepim (France)
- Mines de Douai – Armines (France)
- CTP (Wallonia)

Traitement

Behandeling



Veille technologique

Technologiewacht

Identification

Identificatie

Mise en œuvre

Verwerking

Communication

Communicatie

Recy-Composite

Recherche appliquée transfrontalière

Grensoverschrijdend toegepast onderzoek



Valorisation

Valorisatie

Evaluation

Evaluatie

Caractérisation

Karakterisatie



Project execution

- Size reduction technology (abrasion problem)
- Sorting systems (fibres– resins - ...)
- Reuse of the different fractions
 - Plastics (thermoset – thermoplastic)
 - Additives
 - Fillers
- New raw material
- Fuel

Size reduction

- CTP
 - Different milling techniques
 - Ball mills
 - Grinders
 - Cryogenic mill
 - Separation of fibres and matrix
 - Flotation
 - Electrostatic
 - Frequency separation

Size reduction



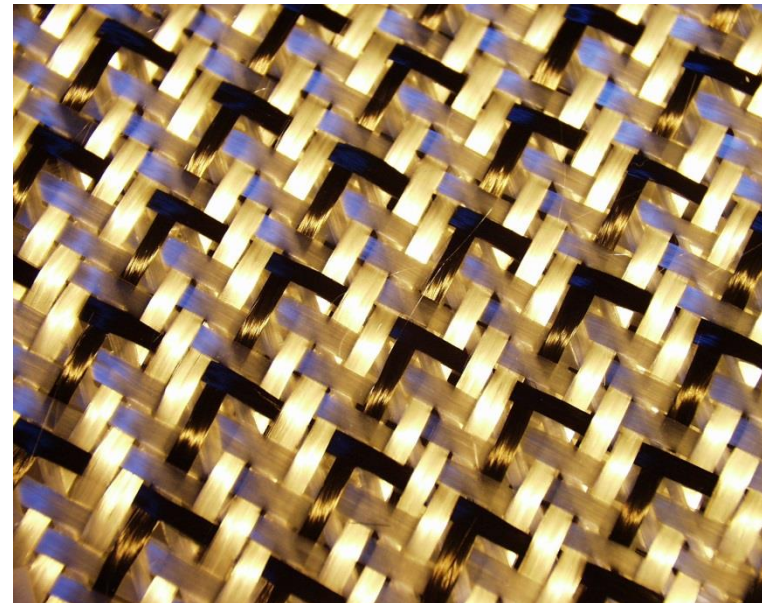
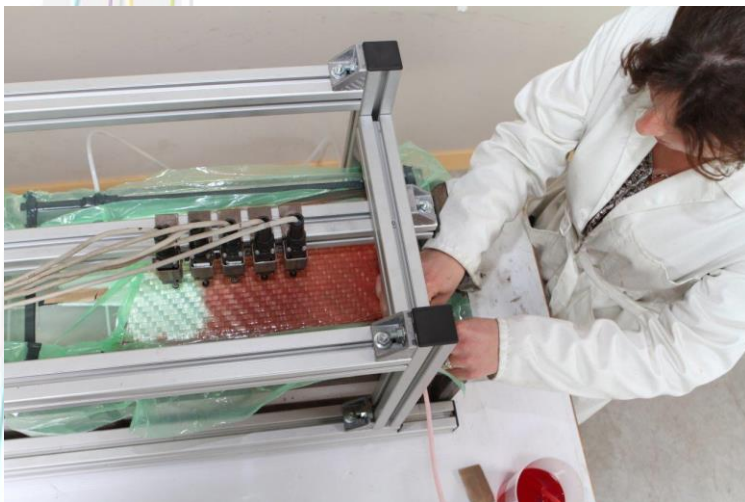
Additives and fillers

- VKC-Centexbel – Mines de Douai
 - Additives for thermoplastics
 - Reuse in composite applications
 - Compounding (with melt filtration)
 - Processing
 - Injection moulding – Extrusion
 - Compression moulding

Processing



Processing



Specific applications

- Crepim
 - Improvement of fire retardant properties
 - Carbonisation (fire repellent foams)



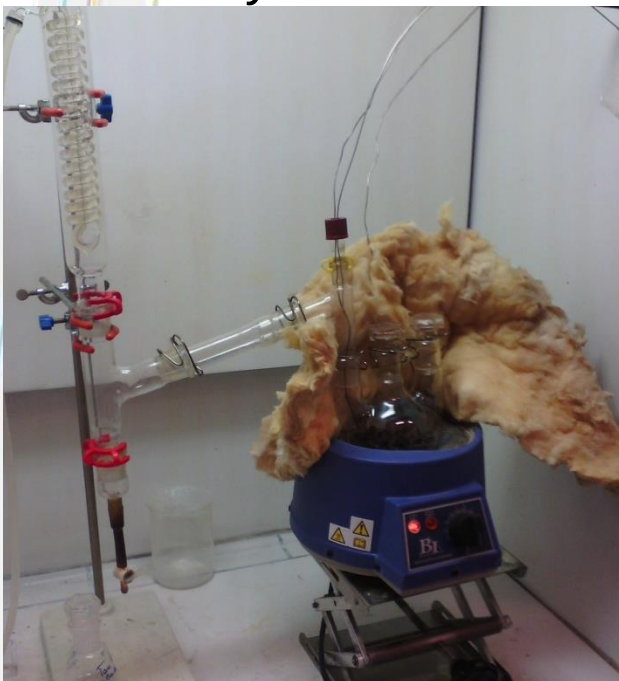
Chemical recycling

- Certech
 - Solvolyse
 - Dissolve and separate the components and return to the base components



Chemical recycling

- Pyrolysis
 - Cracking at elevated temperature in absence of oxygen
 - Conversion to liquid hydrocarbons



Contact

www.recycomposite-interreg.eu
[contact@recycomposite-](mailto:contact@recycomposite-interreg.eu)
[interreg.eu](mailto:contact@recycomposite-interreg.eu)