

Recycling Initiative EuCIA

Board 25 October 2017, Brussels

Why is there a need for attention by EuCIA for Recycling again?

- Sustainable use of resources and materials has gained in importance over the last decade – Circular Economy
- Life Cycle information is taking more and more a center piece in design and use
- Energy transition
- Recycling solutions need to be integrated in the full Life Cycle, while lightweight, durable and sustainable
- Need to be ready for the questions from the Commission about circular economy

Recycling Initiative EuCIA

Board 25 October 2017, Brussels

Objective:

Update information as to the use and end of life of composites

By:

Proper positioning of Recycling as a “Problem”

Taking stock of latest developments and insights

Updating Brochure

EuCIA as a source of information

Proposal/method/output:

Go Public: New Brochure, Articles, Presentations?

Cost

Brochure today

Vintage **2012**: Composites **Recycling** Made Easy (still an excellent document, fully in line with 2016 Aliancys brochure)

Emphasis on:

Thermoset composites cannot be easily converted into their original raw materials:
Composites are designed to provide durability!

Focus on Co-Processing as a solution

Guidance document on Waste Framework Directive WFD 2008/98/EC:
waste used in an operation combining two waste management recovery options
energy content is recovered (R1 operation) as thermal energy

mineral fraction integrated in the product or material produced
i.e. replaces non- renewable fuels and raw materials
(Subchapter 1.4.5). June 2012

Co-processing in cement kilns is compliant with the EU legislation as to waste management

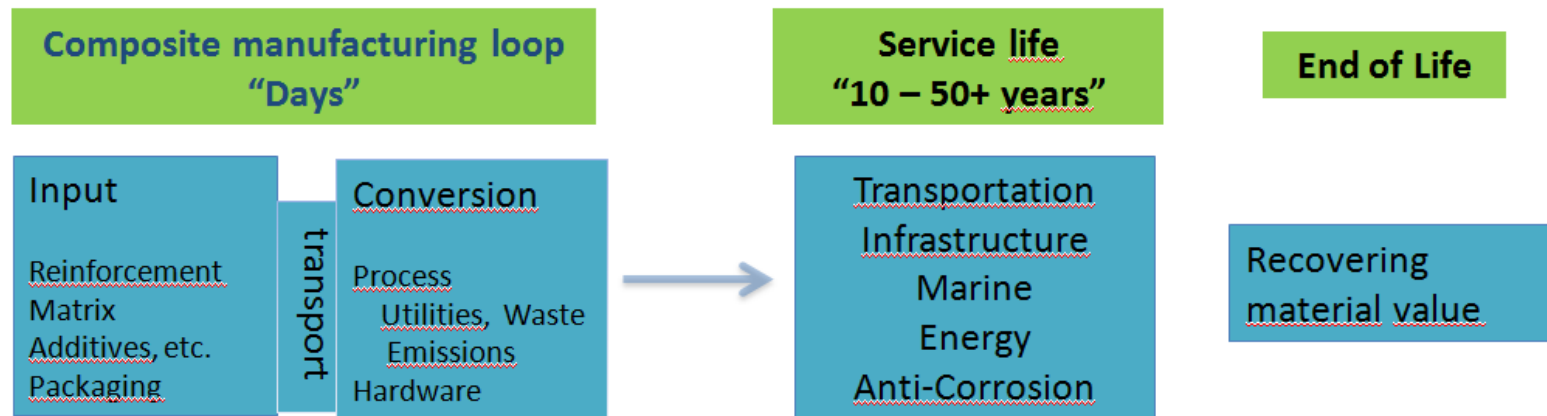
Composites are recyclable

Drawback: the document has a “**defensive** touch”



Proper positioning of Recycling as a “Problem”

FRP Life Cycle



More emphasis on total Life Cycle contribution as to
 LCA
 Economics

Proper positioning of Recycling as a “Problem”

More studies available and underway on recycling processes and better insight in gains

Landfilling
incineration (w & w/o energy recovery)
co-processing
mechanical and thermal reclaiming

AVK Study 2010

Criteria	Eco efficient mix				
	Incineration/Landfill	Material recovery	Thermal recovery	Cement	fiber re-use
		Filler/resin re-use Fiber separation thermal resin recovery			
Cost ratio	1-2	5	1-2	2-3	6
Quality requirements	low	high to very high	none	some specs	high
Market size	will be limited	very limited	un-limited	un-limited	very limited
LCA conform	negative	complex	neutral	neutral	complex
Disposal safety	difficult to impossible	difficult	high	good	difficult
Societal acceptance	poor	advantageous	good	good	advantageous

Objective EuCIA Recycling Initiative

Update Brochure to include:

Latest developments and insights

Legislation regarding re-cycling and related End of Life

Projects member orgs (CompositesNL,...) and other (Composites UK)

Projects Others/Globally (Strathclyde Uni, Genvind, CEFIC & ACMA, Sirris, ...)

CompositesUK brochure <httpscompositesuk.co.uk/system/files/documents/Recycling%20Report%202016.pdf>

Couple with Total Life Cycle, lightweight, durable and sustainable

How to fit in “Green Label”?

Understand Impact of proposed solutions and scenarios

LCA (Study VV as a start, GF/CF)

Cost and Logistics for LCA Scenarios (GF/CF)

EuCIA as repository of knowledge on Life Cycle and End of Life activities

Communication to “World”

Support Member Associations

Some current Projects

- Composites NL: investigation of waste streams
 - end-of-use materials per market segment
 - accessibility of these waste streams for recycling companies
 - Ready end 2017: potentially interesting for FiberEUse
- Horizon 2020 FiberEUse AVK start 2017, Budget € X million
 - Large scale demonstration of new circular economy value-chains based on the reuse of end-of-life fiber reinforced composites
 - Mechanical recycling of short GFRP and re-use in added-value customized applications,
 - Thermal recycling of long fibers (glass and carbon) and re-use in high-tech, high-resistance applications.
 - Inspection, repair and remanufacturing for EoL CFRP products in high-tech applications. Adaptive
- ACMI Cefic Start July 2017, Budget \$ 750k
 - Controlled pyrolysis: A robust, Scalable Composite Recycling Technology
 - Capture embodied energy and chemical feedstocks
 - Reclaim fibers cost effectively and re-use
 - Request for:
 - Contact ACMA
 - EuCIA to actively sponsor this initiative? (CEFIC UPR sector group will do so. Trials in Germany)
 - Approach the EU Commission to get EU wide sponsorship

- Composites UK brochure 2016



Proposal/method

Project team (incl. expertise of the industry, member representation)

Content for the brochure by

Collection of info: status recycling & drivers, activities, projects, legislation

seminar/round table discussion/forum

bring experts together

Create road-map for composite recycling on EU level (Glass
Fiber/Carbon Fiber scenarios)

Use what is already known/done (Composites UK)

Life Cycle approach

Go Public: New Brochure, Articles, Presentations?

Define EuCIA as a source of knowledge as to Composites Recycling

Cost: start with a small budget (10k €)