

Thermosets Composites are compliant with EU Directive

Position Paper on Recycling of Thermosetting Composite Parts in the Automotive Industry

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- I. The European Plastics Converters (EuPC), the European Composites Industry Association (EuCIA) and the European Composite Recycling Service Company (ECRC) welcome the The End-of-Life of Vehicles Directive (Directive 2000/53/EC) and the Waste Framework Directive (Directive 2008/98/EC) and considers that the recycling of waste composites is compliant with the above mentioned legislative measures.

II. Recycling of Composites is compliant with the EU recycling definition

The recycling of thermoset composite parts has been studied extensively for the last years. The European Composite Recycling Service Company (ECRC) commissioned several projects to prove that composite materials can successfully be fed into a cement kiln.

With the developed cement kiln route, composite waste is turned into valuable new material that finds its way in the final cement. The cement kiln route is a recycling process compliant with the recycling definition in the Waste Framework Directive.

In recycling thermoset composites through the cement kiln route, most of the material (approx. 2/3rd) is transferred into raw materials for cement. A small part of the waste, the organic part (approx. 1/3rd) is burnt, generating energy. This process translates as energy recovery according to the recycling definition.

The cement kiln route is not used to generate energy from burning composite waste. When feeding composite waste to a cement kiln, the main part of the material is turned into cement or a useful part of the cement composition. This process translates as reprocessing into materials or substances whether for the original or for other purposes in the recycling definition.

As a side effect, a minor amount of energy is generated by this process. As the cement kiln uses normally a high amount of energy in the form of oil or gas firing for calcination, the end effect of feeding composite waste to the kiln would be that the energy costs for the kiln is slightly reduced.

III. Background on the EU Directives

- The End-of-Life of Vehicles Directive (Directive 2000/53/EC) (ELV Directive) gives rules for the dismantling, reuse, recycling and recovery of components/materials/energy from vehicles that have been junked or totalled. New vehicles must be 85% reusable or recyclable (by mass) and 95% recoverable by December 15, 2008. A type-approval in the European Union is needed before vehicles can be manufactured, imported or registered.
- The Waste Framework Directive (Directive 2008/98/EC) (WFD) sets the conditions for waste handling. An important activity in waste handling is recycling. The WFD was revised in 2008. In the new WFD recycling is defined as follows:



“Recycling means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations”.

IV. Background on Composites

In the manufacturing of transport vehicles like cars, trucks and trains different materials are used. The choice among metals, rubber, plastics, composites and other materials depends to a large extent on various factors such as material properties, price, availability and life cycle considerations.

In recent decades the use of composites material solutions increased significantly, because of the possibility of combining mechanical strength, design flexibility, reduced weight and low system cost. For these reasons composites helped the manufacturing of transportation vehicles with unique design and functionalities, in combination with high fuel efficiency.

Composites are composed of a fibrous material and a resinous matrix. In many cases glass fibres are used as reinforcement materials. The resinous matrix is frequently a thermosetting polymer, such as unsaturated polyester resins or epoxy resins. Inorganic fillers, such as calcium carbonate, can be used to adapt material properties and in some cases to reduce the cost price.

This Position Paper is supported by:

The European Plastics Converters (EuPC) www.plasticsconverters.eu

EuPC is the leading EU-level Trade Association, based in Brussels, representing European Plastics Converters. Its powerful European Plastics Network exists to support the beneficial use of plastics worldwide, especially providing plastics converting companies with a voice in European legislation. EuPC now totals about 51 European Plastics Converting national and European industry associations, it represents close to 50,000 companies, producing over 45 million tonnes of plastic products every year.

The European Composites Industry Association (EuCIA) www.eucia.org

EuCIA is the Brussels based leading Association of the European composites industry, representing European National composite Associations as well as industry specific Sector Groups, such as those targeting end-segments like automotive or those promoting particular product groups or processes. Today EuCIA represents approx. 8.000 companies in 11 countries across Europe, active in the composite industry. In 2007 EuCIA became a Sector Group of the European Plastic Converters (EuPC). Through its Members EuCIA is promoting a good trading environment in a continuously expanding European composites network.

The European Composite Recycling Service Company (ECRC) www.ecrc-greenlabel.org

ECRC is a consortium founded by Composites industry members to actively develop systems and solutions for composites recycling. ECRC has been in operation since 2003 and has been making steady progress towards using composite waste in value added applications.

For questions please contact:

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