



# Competitive Composites Sustainability & Recycling Challenges

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European Parliament, Brussels



## Debate Report

**Keynote Speaker: Mr. Holger Kraemer MEP**

**Chairman: Volker Fritz, EuCIA President**

**Moderator: Amanda Jacob, Reinforced Plastics Editor**

Speakers: Fons Harbers (Chairman ECRC), Bernard Merckx (EuPR President), Mirna Cieniewicz (European Boating Industry Secretary General), Andreas Giovanni (Noor & Partners), Paal Fischenich (Norwegian Composites Association, General Manager), Jean –Pierre de Lary (Secretary General GPIC), Elmar Witten (Managing Director AVK), Jorg Lempke (Managing Director Zajons Logistik), Benedikte Jørgensen, Corporate Sustainability Manager Fiberline Composites), Jean-Pierre Degré (Senior Vice President, Holcim Support Group).





## Competitive Composites: Sustainability & Recycling Challenges

Recycling and Waste Management has become an essential factor of consideration for industries and decision-makers. Finding the right balance between market demands, stricter environmental regulations, remaining competitive and reducing costs has become a growing challenge for the European composites industry. In an effort to overcome these burdens, while at the same time fostering sustainable business models, the composites industry is fully committed to integrating sustainability in the business environment.

On the 4th of May, the European Composites Industry Association (EuCIA) organized for the first time an Information Day, under the Competitive Composites heading. The focus of the debate was on Composites Recycling & Sustainability – main challenges and opportunities. The events was hosted in the European Parliament in Brussels, and supported by Holger Kraemer – Member of the European Parliament, Committee on Environment, Public Health and Food Safety.

Over 50 delegates, from both public and private sector representing the composites industry or related industries came together to assess the sustainability of the composites industry and debate recycling and waste management solutions.

### ***Composites Industry – small but entrepreneurial & innovative***

Introducing the debate, **Volker Fritz, EuCIA President** told the audience that composites industry continues to grow despite various challenges such as competition from other materials. This growth makes composites and composites applications very much part of our life and our society. The environmental benefits this industry brings in terms of CO2 reduction, fuel efficiency and energy conservation have been proven and act as growth triggers for this sector. However, it has to be noted that the European composites industry is small, fragmented but with a huge potential.



***“Composite companies are small and medium sized. And because we are so entrepreneurial and so innovative, we have found very many smart and unique solutions to recycle our materials.”***  
Volker Fritz, EuCIA President



**Keynote Speaker – Holger Krahmer MEP**  
**Political decisions with relevance for the composites industry**

*First of all, let me please highlight the role of the Environment committee of the European Parliament. In the past years, this committee has been the one where the most regulations were adopted in the European Parliament. From a realistic point of view, I would say that EU politics suffer exactly from the problem of an overflow of regulations and directives. I guess that massive regulation is something which is well-meant, but in the end it turns out into a massive bureaucratic burden for a number of companies or consumers instead of resulting into a better protection of the environment. Additionally, the more administrative duties and burden European legislation produces, the less innovation friendly it is. Regulation means standardizing. But innovation is one of the strongest engines for companies, especially for small and medium enterprises. Strong regulation hinders innovation.*



***“Environment - friendly substances, technologies or products do not per se fulfill the demand of being affordable. Nor are all answers to political questions on those in practice ready for the market. I recommend that the hunt for the better technologies should be left to the market. “***

**Holger Krahmer MEP**

*Very often EU-legislation does not consider the diversity in companies operating in different sectors of the market. When EU politics regulates more and more or creates more and more limits, thresholds or other guidelines and specifications, it neglects the realities of entrepreneurship, especially among smaller companies. If the complexity of regulations and directives increases, it will become harder for SME's to comply.*

*Environmental politics in the European Parliament was since a long time marked by distrust and scepticism towards the economic actors and “anti-industrial reflexes” in the past. I am deeply convinced that the application of technologies should be determined by competition and not by political parameters. In this respect, there is a great need to convince a number of political decision makers that politics are not the better market experts than market actors.*

*In the past years, Europe tried to establish standards by political force hoping that they will become accepted globally. The result was the opposite. Let's take climate policies as an example: it shows that the concept doesn't work out. In the international climate conferences Europe lost its importance. Europe only can set technological standards by proving their efficiency in economic and industrial practice. For this, we need the ability to accept an open competition.*

*For composites, there are a number of issues we discuss in the Parliament as well. In environmental politics, we often debate about substances. Are they hazardous? Do they harm our health? A number of good-minded people every now and then try to ban substances which are pretended to be hazardous for instance. Politics is always on the search for the “perfect” substance. But there is no perfect substance. Such a substance would be like a Swiss army knife (which can do everything). It would have to be lightweight, nontoxic, recyclable, cheap, it should not waste resources and it should fulfill the same conditions as the conventional substance. Honestly, this sounds rather like an illusion than reality.*



Nowadays, everyone is speaking of “sustainability”. But what exactly does sustainability mean? Isn't it just an empty phrase? Of course, there are many definitions existing. To me it seems that it a recent „trend“to bear the label of sustainability. But does in fact this label equate to a „green “ image everyone wants to bear? I also get the impression that everyone is defining sustainability in his own way - the way which fits best to the business model. An efficient economic activity which is also saving resources must be in the nature of every entrepreneur or consumer. Of course, every now and then incentives are necessary, but regulation and economic paternalism adopted as a means sustainability are often a handicap for companies.

Let me now briefly comment on a number of directives which might be of interest for you. The directives are not in the process of political decision making but in the implementation phase or already into force. I will highlight the Waste Framework Directive, the Integrated Pollution Prevention and Control (IPPC) Directive, and the End-of-lifecycle-vehicle-directive (ELV).

### 1. The Waste Framework Directive

In Europe we have different systems of waste treatment, re-use, recycling. But we clearly have to ask: Are we really able to allow an internal market for waste management? Many national interests are opposing that goal.

### 2. IPPC – Integrated Pollution Prevention and Control

The objective of the Integrated Pollution Prevention and Control (IPPC) Directive is to prevent and control emissions to air, water and soil from industrial installations across the European Union by promoting the use of Best Available Techniques. However, a recast of the IPPC directive was needed to bring an end to the different implementation and enforcement of the former legislation in the Member States. Disparities in the transposition puts environmental protection at risk and results in distortion of competition. This recast also has to pass the practical test in industrial reality. In turn, first signs from the member states which had not implemented IPPC appropriately yet signal that we are on a good way.

### 3. End-of-lifecycle-vehicle-directive (ELV)

This directive successfully has reached its aim. In Europe, almost all heavy metals from cars have vanished. We mainly produce cars which are nearly 100 % recyclable, re-usable or able to be recovered. There is no need to intensify or revise this directive. An ~~initiative~~ would not produce any added value.

When we are talking of composites in cars, the challenge is to comply with the factors of being lightweight in order to save fuel. The substance must be secure in order to guarantee passenger's security. And the question of how to treat the composites in an environmental- friendly way must be solved. Therefore I am very looking forward to hear from your presentations what solutions composites industry provides us with.

Environmental politics faces the challenge to balance environmental-friendly, economic and social needs. This challenge results in various demands towards substances, technologies and products. Environment-friendly substances, technologies or products do not per se fulfill the demand of being affordable. Nor are all answers to political questions on those in practice ready for the market. I recommend that the hunt for the better technologies should be left to the market.

I want to thank you a lot for your attention and hope we will have fruitful discussions today during



*the conference. I hope that with my short presentation I was able to give you an insight to the necessity and importance of accompanying the political process and also of being present when political decisions are made here in Brussels.*

## ***First panel Session – Recycling & Sustainability Initiatives at the European level***

Speakers in the first panel and representatives of the European organisations introduced the audience to the way recycling and sustainability is tackled by the industry at the EU level.

**Fons Harbers, Chairman of the European Composites Recycling Services Company (ECRC)** opened the discussion by highlighting the growing environmental pressures which are being faced by the composites industry and how ECRC managed to react to these pressures. Mechanical recycling of GFRP has proved to be effective, replacing up to 15% of the virgin material depending on the surface and mechanical characteristics it requires. Technical outlets for recycling SMC and BMC have been established in France and Germany.



***“The focus shift from recycling towards sustainability and recycling as the key for all composite markets are two of the growing trends”.***  
**Fons Harbers, ECRC Chairman**

The shift of focus towards “greener” activities is well considered by the industry. For ECRC, acknowledging recycling & sustainability as a priority also meant structural changes. The aim of the new ECRC integrated under the EuCIA umbrella is to foster environmental activities within the composites industry and to bring the message to the EU decision-makers.

The plastics recyclers, represented by **Bernard Merkx, President of the European Plastics Recyclers Association (EuPR)** highlighted what is needed for the mechanical recycling of plastics to further foster their contribution to a European recycling society. A broader focus on volume of plastics to be recycled coming from various applications, a harmonized collection system and an overall balanced legal background are some of the tools. Together, these tools are essential to support industry players when choices are made between profit & environmental considerations, and short & long term return.



***“EuPR welcomes legislation that protects the environment. But recyclers should be helped to support the increasing additional costs generated by these legislations.”***  
**Bernard Merkx, EuPR President**

Controversially, Merkx turned to mechanical recycling of composites, presenting the findings of a study conducted by Kema Netherlands (2010). The outcomes of the survey showed that production waste is often not recycled because of confusing legislation, small volumes, no market demand for recyclates and no clear economic benefits. End-of-life waste follows the same



patterns. Based on 2015 forecasts, 300 kton of EOL are estimated to be produced but the challenging factors ahead should not be underestimated.



***“Cooperation with other composite-related industries and waste treatment actors is highly desirable”.***  
**Mirna Cieniewicz, Secretary General, European Boating Industry Association**

Positive and ongoing recycling activities in the boating sector have been introduced to the audience by **Mirna Cieniewicz, Secretary General of the European Boating Industry Association**. Today, 95% of boats are built in FRP with an estimated consumption of 115 kton per year for boats smaller than 24 m in length, with marine applications representing 7% of the total composites market. At European level, the boating industry took a proactive approach and developed national initiatives – 2 operational schemes in Finland and France and 3 initiatives under development in Italy, Norway and Spain.

Finland has a state-driven initiative operating since 2005 developed in partnership with a very large recycling company. For a specific fee the boat is loaded on the truck, transported to the nearest recycling facility and grinded. About 1000 boats have been recycled to date, the vast majority of which are small, open craft with outboard engines. In 2009, France developed a different scheme with no dedicated facilities, involving 6 competing players. So far, 250 boats have been treated so far, mostly dinghies below 6 m in length. Cieniewicz stressed that in terms of future recycling activities, several burdens need to be tackled down, such as fostering financial support and incentives for the industry, better and more accurate market data forecast and estimations and a realistic simplified legislation.

**Andreas Giovani, NOOR & Partners** further highlighted the latest status on boating industry recycling in Italy. Three initiatives are currently undergoing, the first being the Materials Recovery Platform (ATECO ID 37) and 2 upstream projects (ENA & ELB). The two projects are looking into the design of innovative boats following the eco-design and LCA criteria, and conversion of FRP waste into secondary raw material as filler following a particular technology.



Picture above Panel Speakers (from left): Mr. Holger Kraemer MEP, Volker Fritz (EuCIA President, Fons Harbers (ECRC Chairman), Amanda Jacobs (Reinforced Plastics Editor), Bernard Merkx (EuPR President), Mirna Cieniewicz (Secretary General, European Boating Industry Association), Andreas Giovani (Noor & Partners).



## **Second panel Session – Sustainability initiatives on recycling at national level**

The second panel debate was started by **Paal Fischenich, General Manager Norwegian Composites Association** who have a short insight into the main activities undertaken by the Norwegian composites industry during the last 20 years. The three well-established recycling methods - mechanical recycling, recycling via the cement kiln route and pyrolysis - showed encouraging positive outcomes from a technical point of view.



*“The composites industry has more than 20 years of experience in recycling of composites. We have knowledge within all areas of recycling. We know and we can prove that composites can be energy recovered, chemical recycled, material recycled, recycled through pyrolysis and recycled to a new material and to energy within the cement industry.”*

**Paal Fischenich, General Manager Norwegian Composites Association**

An innovative method of chemical recycling via the solvolysis, was also developed as part of the Norwegian research project - GjenKomp. Based on this approach, the decomposition takes place for the polyester resin into glycol products which can be used in the synthesis of new unsaturated polyesters. Also, the fibres were able to be recovered at temperatures higher than 200°C and in less than 6 hours. Mechanical properties of recyclates were as good as or even better than with virgin material.

Following the same approach, **Jean-Pierre de Lary, Secretary General , the French Composites Association (GPIC)** presented a project initiated by GPIC in 2009 with the aim of recovering 100 tonnes of production waste. As a large scale project, 5 large industrial partners worked together from waste delivery to storage, shredding and cement industry processing.

As a material for producing cement, 67% of the process was recycled, while 33% was energy recovery with considerable savings in fossil fuels. The composite materials should be chlorine-free to avoid corrosion problems in the kiln and ground to a very precise particle size. While the results were positive, the costs associated with grinding and kiln use are considerably higher compared to landfill costs.



Picture above Panel Speakers (from left): Volker Fritz (EuCIA President), Paal Fischenich (Norwegian Composites Association General Manager), Amanda Jacob (Reinforced Plastics Editor), Jean-Pierre de Lary (GPIC Secretary General), Elmar Witten (AVK Managing Director).



**Elmar Witten, Managing Director of the German Reinforced Plastics Federation (AVK)**, introduced the audience to the work carried out by one of AVK Task Forces – *Sustainability*. Founded in 2009, the objectives of the Task Force are targeted towards communication (communication platform) and the development of a marketing strategy in a “pro-active” behaviour for and with the support of the German composites industry.

Witten also highlighted the results of a pilot study on wind blades recycling and a “Sustainability Report”, publication released for circulation in 2010. Concerning next activities, the members of the Task Force are looking into the development of a sustainability database (LCA) in terms of data availability for resins, LCA methodology and differences in the converting processes.

### ***Third Panel Session: Successful Composites Recycling Solutions***

The high level speakers in the two previous Panels highlighted both the potential & challenges faced by the industry on composite waste recycling and the commitment to sustainability. The debate in the third and last panel focused on readily available solutions for waste management.

**Jorg Lempke, Managing Director Zajons Logistik**, opened the debate at this stage by introducing a new project – CompoCycle- carried out by Zajons Logistik since 2009. This projects acts as a take-back recycling system with a 100% recycling solution – recycling of rotor blades. As such, the facility has an annual capacity of 60.000 t/a and is based on a cooperative partnership with the German based branch of Holcim AG.

Zajons disposal solution for wind blades involves the use of a specially designed mobile saw to cut the parts into smaller segments which are then transported to a shredding plant before being recycled in a cement plant. The key step is shredding, in which parts are treated mechanically in a dry process and then separated by other components (such as metals) using a magnetic + Eddy current separator. The CompoCycle recycling label based on this project has been receiving EU funding in 2011.



*Picture above Panel Speakers (from left): Volker Fritz (EuCIA President), Jean-Pierre Degré (Holcim Group Support Senior Vice President), Amanda Jacob (Reinforced Plastics Editor), Benedikte Jørgensen, (Fiberline Composites Corporate Sustainability Manager), Jorg Lempke (Zajons Logistik Managing Director), Alisa De Backer (EuCIA General Manager).*



**Benedikte Jørgensen, Corporate Sustainability Manager Fiberline Composites**, introduced the audience to the approach taken by the company to sustainability and successful recycling. It was highlighted that within the company's forward thinking, the EU sustainable development strategy is followed within the frames of environmental management at Fiberline.

Jørgensen identified 3 environmental focus areas: energy reduction (savings, consumption & maintenance), waste management and LCA, including Environmental Product Declaration and Product Labelling.

**Jean-Pierre Degré, Senior Vice President Holcim Group Support**, made a clear distinction between incineration and co-processing of composites waste in cement kiln, and outlined how wind blade materials can easily be mixed with chalk for producing the right composition for cement. The main project was started in 2005, followed by a co-operation agreement with Zajons Logistik in 2008 and the building of a new waste treatment plant in 2010.

An RDF-FRP mixture is added to the calcinator at the input rate of 1-11 ton/h with an average calorific value of about 15 MJ/kg. The co-processing ensures a complete thermal and mineral recovery of the wind blades with no impact on the environment. The process also guarantees a secure handling of the FRP dust with no remaining waste such as ash or slag while considerably reducing CO<sub>2</sub> emissions.



*“Co – processing is THE alternative to save our environment and improve industrial ecological footprint”*

**Jean-Pierre Degré, Senior Vice-President Holcim Group Support, SD-AR**

## ***Moving forward and turning words into actions – cooperation between public and private essential***

For **Fritz**, the high level of speakers and the interest showed by the audience meant that a new standard of knowledge and communication on a very important issue for composite materials took place - which did not exist before. This was possible due to the commitment showed by National Composites Associations, companies and other actors involved in composites and composite-related industries, all reunited today under the umbrella of EuCIA and working together for a sustainable business. Nevertheless, new activities on recycling are more likely to be triggered as a result of knowledge sharing at European level and open dialogue between the industry and EU decision – makers.



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**About EuCIA**

*EuCIA is the leading umbrella organisation representing European national composites associations as well as industry specific sector groups, such as those targeting end-segments like automotive or those promoting product groups or processes. Based in Brussels, EuCIA is fully committed to a sustainable growth of the European composites value chain.*

**EuCIA Members**

*EuCIA has three categories of members: National Composites Associations, Sectorial Organisations and Associated Members. Currently, EuCIA membership includes 10 National Associations across Europe and 3 Sectorial Organisations. Together, more than 10.000 companies and 150.000 employees are actively involved in composites production across Europe.*