

Targets for Bio-Based Products

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Source: nova-Institut 2010

1: Suitable for using bio-based plastics as matrix

2: AVK 2010, Ellis, P. 2010, nova 2010

3: Estimate for the year 2020, under favourable political framework

The European Hemp Association (EIHA) welcomes and supports the discussions on European targets for different bio-based products, such as bio-polymers, bio-lubricants, and certain chemical building block chemicals, within the Lead Market Initiative (LMI), the Ad-hoc Advisory Group, the EU-RRM Group and the European Association for Bioindustries (EuropaBIO).

However, EIHA wishes to point out that the field of bio-composites and Natural Fibres should not be forgotten, but fully integrated within these targets for bio-based products. The implementation of a specific target for bio-composites should also be considered: for example, from a technical point of view, more than 30% of fibre reinforcement can be achieved by natural fibres.

Currently at least 315,000 t of bio-composites reinforced by natural fibres, are already being used in European Industry, mainly in the automotive and construction sectors. By 2020 this quantity could be more than doubled (see table).

In fact, automotive interior parts with natural fibres already today are between 30 and 80% bio-based and bring the added advantage of lightweight construction. Both these factors lead to a significant reduction in CO₂ emissions in the order of 30% and more, replacing plastics and glass fibre. Using bio-based plastics as a matrix, fully bio-based composites could be achieved with even lower CO₂ emissions. Natural fibre can improve the profile of bio-based plastics at low cost and with additional environmental benefits.

EIHA will soon present a Meta-Life Cycle Assessment on Hemp Fibre bio-composites to prove their environmental advantages.

Furthermore, the EU Commission is already supporting the development of bio-composites by funding research and development. We should point out that currently, in the area of natural fibres, there are important projects on natural fibre modification with enzymes (biotechnology) and ultrasonic or plasma treatment to achieve a better compatibility with (bio-) plastics.

ELV Directive: an opportunity to increase the use of bio-based products

Finally, we wish to point out that the ELV Directive seems to offer an excellent opportunity to fulfil the bio-based product targets. The Directive states that no later than January 1st 2015, for all end-of life vehicles, the re-use and recovery target will be increased to a minimum of 95% of the average weight per vehicle and year. Within the same time limit, the re-use and recycling will be increased to a minimum of 85% of average weight per vehicle and year.

Something which could easily be implemented and furthermore, would have a high impact on the use of bio-based plastics and composites, would be if the bio-based share of the products could count as 're-used and re-cycled', independent of their intended route: in other words, even if they go for energy recovery. A justification for this change in classification could be that bio-based materials will only emit 'green carbon' during incineration.

Bio-Composites	Estimated Quantities in the EU 2010	Estimated Quantities in the EU 2020 ³
Compression moulding		
- with natural fibres like flax, hemp, jute, kenaf, sisal, abaca, coir (> 95% automotive, 5% cases and others) ¹	40,000 t	120,000 t
- with cotton fibre (automotive, mainly lorries)	100,000 t	100,000 t
- with wood fibre (mainly automotive) ¹	50,000 t	150,000 t
Extrusion and injection moulding		
- Wood Plastic Composites (WPC) (construction, furniture ¹ , automotive ¹ , consumer goods ¹)	120,000 t	360,000 t
- with natural fibres like flax, hemp, jute, kenaf, sisal, cork (construction, furniture ¹ , automotive ¹ , consumer goods ¹)	5,000 t	100,000 t
Bio-Composites in total	315,000 t	830,000 t
Composites in total (glass, carbon and natural fibre-reinforced plastics)²	2.4 Mio t	3.0 Mio t
Bio-based Share	ca. 13%	ca. 28%