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WP6 - Sustainability and standardisation Deliverable 6.2 – Public summary of the market analysis of the biobased materials and products

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Dissemination Level (Specify with “X” the appropriate level)		
PU	Public	X
CO	Confidential, only for members of the consortium (including the Commission Services)	





List of abbreviations / Nomenclature

Abbreviation	Definition
TPU	Thermoplastic polyurethane
PU foam	Polyurethane foam
SWOT	Strengths/Weaknesses/Opportunities/Threats
ISI	Institute for Scientific Information
CAGR	Compound Annual Growth Rate

REVISION TABLE			
VERSION	DATE	NAME	AUTHOR/COMMENTS
1	17 October 2018	First draft	Karolina Pawłowicz (GREENNOVENTION) MIGHT Sp. z o.o.
2	18 October 2018	Review first draft	Magdalena Urbańska (GREENNOVENTION)
3	29 October 2018	Final summary of market analysis	Karolina Pawłowicz (GREENNOVENTION) Magdalena Urbańska (GREENNOVENTION) MIGHT Sp. z o.o.



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1. Introduction

The present document constitutes the "Public summary of the market analysis of the biobased materials and products " and describes the public summary of market analysis for BIOMOTIVE. The BIOMOTIVE project aims to demonstrate, in relevant industrial environments, the production of innovative and advanced bio-based materials (i.e. thermoplastic polyurathanes, 2-k thermoset polyurethane foams and regenerated natural fibres) specifically for the automotive industry. The improved performance of these materials within the automotive sector, will allow massive penetration of biobased polyurethanes and regenerated fibres into additional "large volume" markets. A summary of the market analysis was created to summarize the overall Market analysis of the biobased materials and products.

This document fulfills the role of public summary of market analysis of biobased materials. A full analysis was created for the needs of BIOMOTIVE project, which received funding from the joint venture "Bio Based Industries" as part of the European Union's research and innovation program "Horizon 2020" under the grant agreement No. 745766.

„Analysis of biobased materials and products in Europe” is not just a description of the current market situation, but above all an assessment of market development potential.

While reviewing summary of market analysis one should take into account issues such as:

- Market research does not include recommendations, but rather is an analysis of potential market opportunities in european countries, focusing on the automotive market;
- This analysis does not take into account specific vision of the area, the wider political context or public contribution;
- This is just one of many tools that will be used to determine future recommendations for the Biomotive project.

The authors of the analysis are Karolina Pawłowicz and Magdalena Urbańska in cooperation with the MIGHT Sp. z o.o. company.



Outline

A full market analysis concern the market's volume and demand of all the targeted biobased products (TPU, PU foams, regenerated fibres for technical textile) in the automotive sector . The market studies also aims to monitor the competitive processes and to define the target of the potential customers for all types of products, in order to establish how to capture them and develop suitable products at a competitive price. Market analysis include:

- segmentation for key innovations;
- identification of secondary applications;
- market entry strategy;
- market size;
- alternative technological competition and the relevant social;
- SWOT & GAP analysis of the opportunity;
- identification of other side markets for the future application of the targeted biobased materials.

The document with a public summary of the market, which is a summary of the full market analysis carried out for BIOMOTIVE project, has been placed on BIOMOTIVE Website at www.biomotive.info, where it serves as a public summary. Anyone interested can enter and read the document.

2. Public summary of market analysis

Bio-based polymers still hold a tiny fraction of the total global plastic market. Currently, biopolymers share less than 1% of the total market. At the current growth rate, it is expected that biopolymers will account for just over 1% of polymers by 2015. The worldwide interest in bio-based polymers has accelerated in recent years due to the desire and need to find non-fossil fuel-based polymers. As indicated by ISI Web of Sciences and Thomas Innovations, there is a tremendous increase in the number of publication citations on bio-based polymers and applications in recent years. Bio-based polymers are closer to the reality of replacing conventional polymers than ever before. Nowadays, bio-based polymers are commonly found in many applications from commodity to hi-tech applications due to advancement in biotechnologies and public awareness. However, despite these advancements, there are still some drawbacks which prevent the wider commercialization of bio-based polymers in many applications. This is mainly due to performance and price when compared with their conventional counterparts, which remains a significant challenge for bio-based polymers. The Industrial chemical application is anticipated to dominate the global Biobased chemical market whereas the Agriculture application is anticipated to grow at a faster CAGR of 16.48% during the forecast period. In terms of products, Biofuels have generated the highest revenue of \$3690 million in 2016. On the other hand, Bioplastics are anticipated to grow at a faster CAGR of 16.43% during the forecast period. Biofuel market includes biodiesel, biogas and solid biomass. Biodiesel dominates the biofuel market by contributing \$1437million in 2016. Biofuels are produced from organic material such as animal waste and plant materials. The increasing technological advancements enable the extraction of biofuels from materials such as crops, woods, and waste materials. Bioplastics accounts to 1%, that is, around 300 million tons of annual production of plastic. However, the increasing demand for varied applications in different sectors, with new emerging and more sophisticated products is driving the growth of the global market at a rapid pace. Bioplastics market includes Biodegradable and Nonbiodegradable market. The bio-degradable market is the fastest growing segment in bioplastics market with a CAGR of 16.62% during the forecast period. Asia-Pacific is the largest market for the Biobased chemicals market, and the demand for Biobased chemicals in this region is anticipated to increase during the forecast period. Europe is the second-largest Biobased chemicals market, owing to the development of new value chains with bio-based feedstock, i.e. creation of biochemicals and biorefineries. North America is anticipated to grow at a faster CAGR of 17.03% during the forecast period. Availability of low cost and abundant feedstocks, the shift of consumer perception towards more eco-friendly products and



the government initiatives and regulations are anticipated to be the key factors for the growth of North America biochemicals market. In Europe, Germany dominates the market followed by France, UK, and Italy. Asia Pacific is one of the largest producer and consumers of bio-chemicals. Currently, it accounts for 42.38% share of the total market. Availability of raw materials and the technological advancement is becoming the base of the market. The awareness of bio-based chemicals and its varied advantages are the major key factors for the development of the market.

Government policies towards business sustainability programs, intensive fluctuations in the crude oil prices, usage of the eco-friendly product and high market probable of bio-based chemical products are the chief drivers for the market development. Conversely, aspects inhibiting the market development are a dearth of supply chain exemplary in feedstock and raw materials and the low acceptance level in biopesticides. Lack of supply chain model in raw materials and feedstock is a major factor which hinders the growth of the global bio-based chemical market. Most of the raw materials used for the production of bio-based chemical need raw materials that are organic in nature. Rising demand for bio-based product amongst end users is the major factor which helps in boosting the bio-based chemical market in near future. Biobased products majorly comprise of plants and animals as their main ingredients. The challenges in the Biobased chemical markets are the higher prices of bio-based chemicals and the food safety issues due to the significant climate change.

Cars manufacturers are under increasing pressure to consume less fuel. Much of this improved performance will come from the fact that cars will be lighter – they will be less demanding – i.e. they will reduce they have to move. Every 10% reduction in vehicle weight reduces fuel consumption by 5-7%. As a result manufacturers show a growing interest in light materials; the visible fraction (about 20%) of modern cars is made of plastic and this amount is expected to increase thanks to the recognized properties of polymers absorbing sound and vibrations. Despite these advantages, there is no single biobased plastic that provides aesthetics in combination with technical properties (shock resistance, heat resistance, fire resistance and weight loss) that they need.

The aim of BIOMOTIVE project is to demonstrate in the relevant industrial environments the production of innovative and advanced bio-based materials (i.e. thermoplastic polyurethanes, thermoset polyurethane foams 2-k and regenerated natural fibers) designed specifically for the automotive industry. Better performance of these materials in the automotive sector will enable mass penetration of bio-waste of polyurethanes and regenerated fibers into additional "high volume" markets.

The automotive and chemical industries play a key role in the European economy due to their participation in many other industries. As Euler Hermes predicts in its report "Global Automotive Report" global vehicle sales can reach even the threshold of 100 million vehicles in 2019, because innovation is the main driver of change. Forecasts regarding private consumption and investment of enterprises driven by growing incomes and still low interest rates will support new registrations in passenger cars (74% of the total) and commercial vehicles (26%) in most countries. We expect further growth in the European Union by + 2%, where the United Kingdom is an exception because there is a drop forecast of -6% there. In previous years, particularly the region of central and eastern Europe has become the target of foreign investments in the automotive industry, which positively affects its continuous development. Most European automotive markets have seen an increase in sales. The chemical market also plays a key role in the European industry. The forecasts say that in the next years the fastest development of the chemical sector in Europe is expected in the region of Central and Eastern Europe.

The analysis of the bio-based materials market focuses its research on the automotive market in countries belonging to the European Union. This analysis was created for the needs of BIOMOTIVE project, which is to be used as a tool to help enter the automotive market with products based on bio materials such as TPU, PU foams, regenerated fibers for technical textile. The project received funding from the joint venture "Bio Based Industries" as part of the European Union's research and innovation program "Horizon 2020" under the grant agreement No. 745766.



The analysis of the size of the market is narrowed down to the analysis of the Old Continent, that is Europe. The leaders in the automotive industry are definitely countries such as Germany, which the automotive market has the most developed and Spain, France and the United Kingdom. These countries are also the leaders in the possession of car factories. Despite the global crisis, which was the reason for the slowdown in sales of motor vehicles, the automotive market in 2012 - 2017 has been steadily increasing. The increase in the registration of new vehicles has increased by 3.4 percent. where Lithuania, Hungary, Bulgaria, Croatia and Poland were the countries with the largest increase in new registrations.

The automotive industry has been characterized by a significant pace of changes covering the final products and sales models, production technologies, organization of the production process, management area. The applied solutions in the area of quality management or in shaping the value chain, are becoming common standards, also in other sectors. The multitude and diversity of relations with the environment is one of the more complicated in the automotive industry. Automotive manufacturers operate in a large, global network of connections with numerous entities on the market. This, in connection with the need to use technically advanced, expensive production systems, places the automotive industry in a group of sectors with high entry barriers. Nevertheless, due to rapid changes in the environment, there is a noticeable need to change competitive activities in order to be able to defend against new entities. These companies, often not closely related to the industry, by introducing revolutionary solutions in the field of new types of drives or autonomous vehicles, are in fact able to threaten the existing leaders, or at least limit their competitive position. However, this should be seen as a chance for development for the entire sector, stimulating the undertaking of innovative activities. The presented analyzes regarding the position of the analyzed companies on the Polish market point to the lack of threat of leaders from new entities. The Polish automotive market, in terms of placement of new vehicles, is however quite specific. Due to the lower customer's abundance, there is a significant share of used vehicles, often several years old. Car manufacturers offering modern and more expensive solutions, for example in the field of security systems, do not have such a strong breakthrough. The attachment to brands traditionally seen as prestigious is of greater importance in purchasing decisions.

4. Conclusion

The present deliverable describes the public summary of market analysis of the biobased materials and products.

This document fulfills the role of summary of biobased materialsthis analysis was created for the needs of BIOMOTIVE project, which received funding from the joint venture "Bio Based Industries" as part of the European Union's research and innovation program "Horizon 2020" under the grant agreement No. 745766. Analysis of biobased materials and products in Europe" is not just a description of the current market situation, but above all an assessment of market development potential.

References

1. Grant Agreement Number 745766 - BIOMOTIVE.