



**Grant Agreement n°:** 311935

**Project acronym:** BRIGIT

**Project Title:** *New tailor-made biopolymers produced from lignocellulosic sugars waste for highly demanding fire-resistant applications.*

**Funding scheme:** Collaborative project

**Start date of project:** 01/08/2012

**Duration of project:** 48 months

**Deliverable & title:** D9.15 Third Open-Workshop program and report

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**Actual date:** 12/07/2015

**Partner responsible:** CRF

**Date of the last version of the Annex I against which the assessment will be made:** 14/02/2016

**Project coordinator:** AIMPLAS

Dissemination Level		
<b>PU</b>	Public	√
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	

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## 1. INTRODUCTION

Following the first two BRIGIT workshops organised by UNICAN devoted to biorefineries, and organized by Biotrend and SilicoLife devoted to industrial biotechnology, CRF has organized the third and final workshop on application and processing of biocomposites in transport.

The one-day workshop took place on June 15th at CRF, Orbassano (Italy).

The growing perception from consumers and the continuous government regulations to decrease pollution associated to the necessity to reduce our dependence on foreign oil, make crucial the investigation and development of biopolymers and biocomposites solutions in transport sector. Biomaterials such as wood and vegetal fibers have been used for years in automotive and in transport. The beyond step is the introduction of cost effective bioplastics derived from waste resources, also in combination with natural fibers.

The workshop showed the results reached in BRIGIT project starting from the formulation of the bio-based materials with intrinsically flame retardant properties towards processing of panels and their application in trucks and buses. The feasibility in term of environmental and economic viability of the new biocompounds and panels ready to be applied on the vehicles has been one of the central thread of the workshop.

The workshop has focused on:

- Formulating (AIMPLAS)
- Processing (XPERION; PROFORM)
- Application (SOLARIS; CRF)
- Economic and environmental analysis (NEXTEK)

In addition to the BRIGIT Partners,

- A compounder (MAIP Group) and a carmaker (FCA) has presented their approach to biomaterials.

## 2. WORKSHOP PROGRAMME

### Application and Processing of Biocomposites in Transport

Workshop within BRIGIT, a EU FP7 collaborative research project

Venue: Fiat Research Center, Orbassano, Italy

BRIGIT project: Third Open Workshop

Wednesday, 15th June 2016

9:00 - 9:30	Welcome, Registration and Coffee	
9:30 - 10:00	Formulation of new biopolymers produced from lignocellulosic sugars waste for highly demanding fire-resistant applications	<b>AIMPLAS</b> Miguel Ángel Valera
10:00 - 10:30	Extrusion of biocompounds containing blends of different flame retardant	<b>PROFORM</b> Zsolt Kurucsai
10:30 – 11:00	Coffee break	
11:00 – 11:30	Scale-up processing in industrial level of new biocomposite	<b>XPERION</b> Stephan Tiede
11:30 – 12:00	Application in transport sector: truck case study	<b>CRF</b> Andrea Pipino
12:00 – 12:30	Application in transport sector: bus case study	<b>SOLARIS</b> Radomir Manturo
12:30 – 14:00	Lunch	CRF Canteen
14:00 – 14:30	Environmental and economic impact of new biopolymers produced from lignocellulosic sugars waste for highly demanding fire-resistant applications	<b>NEXTEK</b> Kelvin Davies

14:30 – 15:00	Biobased plastics and products by injection moulding	<b>MAIP Group</b> Eligio Martini
15:00 – 15:30	Agro-food waste as raw material for the future transport industry	<b>FCA/CRF</b> Silvia Avataneo
15:30 – 16:00	GREEN-LIGHT: a research project to make lignin carbon fibre possible	<b>CRF</b> Vito Lambertini
<b>16:00 – 16.15</b>	Workshop Conclusions	<b>CRF - AIMPLAS</b>

### 3. PRESENTATIONS

The workshop started with a welcome and an introduction to application and processing of biocomposites in transport by Andrea Pipino from CRF followed by a general presentation of the Brigit project objective and main developments and results achieved by Miguel Angel Valera, coordinator of the project from AIMPLAS.

Miguel Angel Valera continues with a presentation to show the process to produce the basic biomaterials via extrusion and compounding addressed to the laminates to be used in transport application. Details on their characterisation and properties are given for different formulation and layers composition.

Zsolt Kurucsai from PROFORM shows the production line and the optimised parameters to produce the biopolymers sheets. Next step, the production of the biocomposite laminated panel composed by a cork layer, vegetal fabric and biopolymers sheets is presented by Stephan Tiede from XPERION.

The second part of the morning session was devoted to the application in trucks and busses of the BRIGIT panel. Andrea Pipino from CRF shows the thermoforming process to obtain a 3d part from the BRIGIT laminate to be used in truck application and specifically for a pillar cover. Radomir Manturo from Solaris shows the application of the laminate in a bus panel and its processability using traditional equipment for cutting and gluing. The two demonstrators are showed.

The afternoon session is opened by Kelvin Davies from NEXTEK with an overview of economical and environmental impact of biocomposites.

Eligio Martini from MAIP Group, an innovative and dynamic company involved in plastic compounding like biopolymers and natural fibers for different sectors included transport shows the wide range of biopolymers and application developed in these last years.

Silvia Avataneo from Fiat Chrysler Automobiles Group illustrates the environment policy of the company and the approach to biomaterials and renewable resources and the main FCA activities in the field.

The workshop is concluded by Vito Lambertini from CRF with a presentation on an EU project concerning the realisation of carbon fibers from renewable resources such as lignin. The project named GreenLight is part of the Bio Based Industry (BBI) program and some possible synergies with BRIGIT in future use of the fibers in the biocomposite are highlighted.

## 4. PARTICIPANTS AND FEEDBACK

The workshop has been participated by around 30 persons. Half of those were persons working directly on the BRIGIT project and half were external persons coming from Universities (students from Politecnico of Turin, University of Turin, University of Athens) and companies involved in transport business. A certificate of attendance has been distributed among participants.

The BRIGIT prototypes (truck pillar cover, bus panels) and some development samples were exhibited during the workshop

The feedback received from different participants confirms the interest of the BRIGIT project as case study to cover the supply chain in bioproducts addressed to transport industry.



