



Wind Blade Using Cost-Effective Advanced Lightweight Design

Issue 2 December 2014



The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under Grant Agreement no.309985

Welcome to the second issue of the WALiD newsletter. This issue includes the continuation of our partner's feature and you will find details below of two videos produced specifically for the project which are available to view on the project website.

We hope you enjoy this issue and would like to wish all our readers a very Happy Christmas and Prosperous New Year.

Project Progress

In the first year of the project the WALiD consortium has progressed well towards its goals. An initial blade design has been designed and new concepts for the root and shear web developed.

Project Videos

Two project videos have been produced. The first is a brief overview of the project, and the second focusses on the technologies used within the project such as tape production and automated fibre lay-up, mould milling, foaming and coating.

Both videos are available for download from the project website at www.eu-walid.com.

In addition, the requirements of material properties have been established and an experimental plan set up.

Foaming trials have been carried out and foamed materials have been investigated with respect to density, cell size and compressive stress.

Various designs and concepts for the shear web have been investigated to establish how they can be manufactured with the robot lay-up of thermoplastic reinforced tapes.

A predictive model for erosion resistance has also been developed and a new droplet impingement test prepared.

Work is continuing to progress in relation to Life Cycle Assessment and economic evaluation although initial data has been collected and the data and scope of the study established.

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Or check out our website: www.eu-walid.com

ITHEC 2014

Fraunhofer ICT presented a paper on WALiD at the second International Conference and Exhibition on Thermoplastic Composites which took place in Bremen, Germany. The event which addressed structured thermoplastic, lightweight construction was held on 27th and 28th October.

The focus of the presentation was the material developments in foam and composite materials within WALiD but also included investigations into the evaluation of fibre matrix interfaces with different material combinations and the resulting influence in mechanical properties. blowing agents was also shown.





Project Meetings



A **12 month General Assembly meeting** was hosted by Comfil in Denmark on 25th and 26th March 2014 which was attended by all partners as well as the Project Technical Advisor. During the meeting the partners visited LM Wind Power at Vingen Lunderskov where they were given a tour of the Brand and Test Centres.



A **Work Package Leader's meeting** took place in Paris on 26th June 2014. During this meeting the work package objectives were discussed together with work carried out to-date. The meeting was also an opportunity for partners to highlight the technical work and the interfaces addressed between the work packages and to discuss and resolve any issues.



A **General Assembly meeting**, hosted by Smithers Rapra was held on 9th and 10th September 2014. On the first day of the meeting which was held at the National and Renewable Energy Centre (NAREC) in Blythe, UK, the partners were given a tour of the facilities. The second day of the meeting took place at the Cophorne Hotel in Newcastle upon Tyne where partners presented their work package updates and participated in break out sessions in order to discuss progress of work in more detail.



A **Review meeting** was held in Brussels on 22nd October 2014, this was preceded by a partners' meeting on 21st October which was attended by the Work Package leaders. During the review meeting the work package leaders presented their work packages to the Project Officer and the Project Technical Advisor from the European Commission.



Partner's Feature



Fraunhofer Institute for Chemical Technology ICT

The Fraunhofer Institute for Chemical Technology ICT, founded in 1959, is one of the largest and longest-established institutes of the Fraunhofer-Gesellschaft, which currently has around 23,000 employees and a total turnover of 1.9 billion Euro. Including the institute's six external project groups, the Fraunhofer ICT had around 900 employees in 2014.

At its headquarters in Pfinztal over 550 employees carry out research and development work in the fields of energetic materials, energetic systems, applied electrochemistry, polymer engineering and environmental engineering. The total area of the institute in Pfinztal is 200,000 m². This includes 25,000 m² of laboratories, offices, pilot plants, workshops, test stands and other facilities. This exceptional research infrastructure, which includes high-volume pilot plants and industrial-scale equipment, enables the institute to develop and implement new materials, processes and products up to near-industrial level. State-of-the-art laboratories, and all the necessary testing and analytical processes, are available for research work. The Fraunhofer ICT has a close working relationship with numerous universities and colleges, especially with the Karlsruhe Institute of Technology KIT.



Fundamental and application-oriented knowledge is utilized and further developed in hundreds of projects each year. The Fraunhofer ICT supports its clients and project partners from the original idea to the prototype phase or even to small-series production, according to their requirements. Clients and project partners are mostly from the automotive and transport sectors, as well as the fields of energy, environment, defense, security, and chemistry and process engineering.



Main tasks of Fraunhofer ICT within WALiD

The Fraunhofer ICT is the technical coordinator of the WALiD project and also leads the technical work package 2 where new design and materials for blade root and tip are developed.

Fraunhofer ICT is involved in the design, process and material developments within the WALiD project:

- Material selections of thermoplastic materials
- Laminate production and testing of developed materials
- Development of foaming process and characterisation of foaming behavior and foam structure for shell core and shear web
- Support in manufacturing of the blade demonstrators and testing



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Forthcoming Events



This biennial event will be held from 10th to 12th March 2015 at the Bella Center, Copenhagen, Denmark. This event which is the world's largest offshore wind energy conference and exhibition will include a range of conference sessions and networking events.

For further information, go to www.ewea.org/offshore2015

Look out for our Blog



New Blog starting January 2015.

Visit the project website at www.eu.walid.com for more details next year.



IWPC will be held at the WOW Istanbul Convention Centre, in Turkey from 31st March to 2nd April 2015. This event will cover such issues as wind energy, wind power, environment and energy efficiency.

For further information, go to www.iwpc2015.org



The Eleventh Coatings Science International Conference will take place at Hotels van Oranje from 22nd to 26th June 2015. This leading European conference on coatings science and technology will focus on the scientific backgrounds of the newest technological developments relevant to coatings.

For further information, go to www.coatings-science.com

Project Partners:

Fraunhofer Institute for Chemical Technology (Germany), Smithers Rapra & Smithers Pira (UK), TNO (Netherlands), APT (Cyprus), PPG (Netherlands), Norner (Norway), Comfil APS (Denmark), Loiretech (France), Coriolis Composites (France), NEN (Netherlands), WPS Windrad Power Systems (Germany)

Key Facts:

Project acronym: WALiD

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