

HPRS

BENEFITS

The HPRS project will indeed benefit EU citizens thanks to the innovative solutions that will positively affect energy, GHG emissions and chemical areas.

-- 10% reduction in the emission of volatile compounds.

- 15% reduction in energy consumption in the blending process and 5% in the MDF drying process.



The duration of the project is from 1st July 2013 to 30th December 2015

HPRS

PARTNER



IMAL is a manufacturing company, leader in the supply of equipment and systems for the production and processing of particleboard, MDF, OSB, plywood, pallets and pallet blocks.

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Xilopan is a private company producing and selling raw and finished wood particleboard. Xilopan starts from the raw wood through to the milling and drying processes, after which the particles are blended with resin to obtain a finished product of various thicknesses. Xilopan will validate and test the new low-resin content wood prototype panels.



<http://www.acimall.com/>

Acimall is the Italian Woodworking Machinery and Tool Manufacturers Association. Its main mission is to promote the Italian industry abroad.



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The company works as a dealer / consultant for various machine manufacturers based in Italy, Germany, and Austria etc. The main knowledge is in all the different wood based panels such as MDF, Particleboard, OSB, Plywood, as well as all the different processes applied to the boards after manufacture, like lamination, veneering and so on.

In order to reach this goal, a consortium of four partners, coming from two different EU countries (Italy and Spain) specialized in manufacturing wood-made panels, has been formed.

HPRS

PROJECT

Life

High

Pressure

Resination

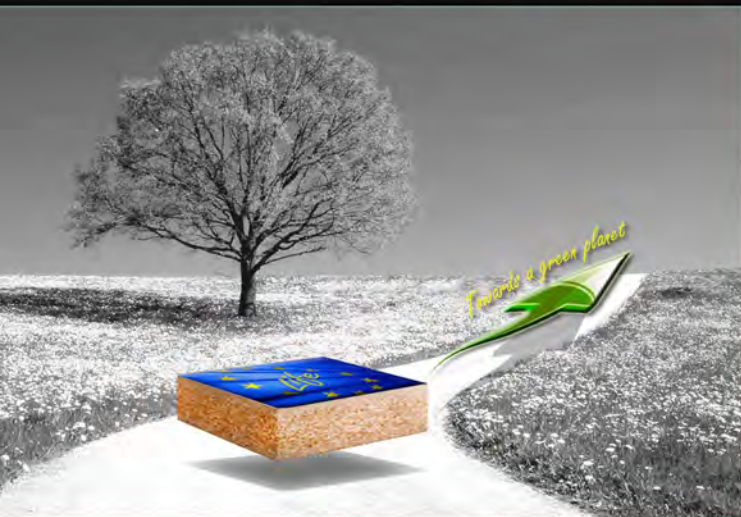
System

The HPRS project is co-funded by the European Commission within the ENV.E.4 LIFE Programme



HPRS

THE PROJECT



HPRS stands for **HIGH PRESSURE RESINATION SYSTEM**, this project aims at developing, implementing and demonstrating the innovative high pressure resination system, before moving on to the commercialisation stage.

The target is to design a novel type of sustainable variable section orifice sprayer nozzles, through which resins are sprayed homogeneously at high pressure.

Such a system shall be capable of improving the energy efficiency of the electric motor utilized within the blending process itself by 15%, and at the same time, of reducing resin addition by 10%, and consequently the presence of toxic substances like formaldehyde.

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In traditional processes the wood fibres are crushed and driven at high speed inside drums, where the resin mix is injected through nozzles at a given pressure and mixed without a careful control of the resin/wood ratio.



The HPRS solution consists in the application of sprayer nozzles with a variable orifice diameter, where resin pressure is monitored and kept at high speed to achieve a rapid and uniform

distribution of the resin over the surface of the strands or chips, hence reducing unnecessary resin consumption and achieving an overall optimization of the blending process. Whilst UF resins have desirable thixotropic properties and provide the wood panel with good structural properties, it is paramount to optimize their use in relation to the desired properties and minimize the amount of formaldehyde, known for its effects on human health.



The LIFE-HPRS project is a 30 month project co-funded by LIFE+ which is the European Union's financial instrument supporting environmental and nature conservation projects.

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OBJECTIVES

TIMETABLE

Action number	ACTION	2013				2014				2015				
		I	II	III	IV	I	II	III	IV	I	II	III	IV	
A. Preparatory actions:														
A.1	Preliminary action: collection of information and laboratory tests.													
A.2	Design of the pre-pilot line													
B. Implementation actions:														
B.1	Construction of the prototype pilot line													
B.2	Manufacturing of the prototypes													
B.3	Prototypes testing and validation													
B.4	Industrial Validation of the pilot plant and final refinement													
C. Monitoring of the impact of the project actions:														
C.1	Environment impact assessment of the novel product towards specified indicators													
C.2	Evaluation of the replication potential of the novel product and market analysis on impact scenario													
D. Communication and dissemination actions:														
D.1	Dissemination and communication													
E. Project management and monitoring of the project progress:														
E.1	Project Management													
E.2	Networking with other EU projects													

Technical objectives:

- To demonstrate the environmental, economic and technical benefits achieved with the introduction of new mechanical technologies for sprayer nozzles and blending power, capable of distributing the resin particles in a more efficient manner with respect to current blending technologies on the market.
- To demonstrate the effectiveness and efficiency of the entire production process and quality of final products with respect to state-of-the art technologies.

Environmental objectives:

- To achieve a drastic reduction in the amount of resin utilized in the panel production industry by demonstrating that an EW panel production line can save up to 10% in resin for each m³ of panel produced.
- To demonstrate a relevant reduction in energy consumption in the blending and drying process by using an injection system that carries out a preliminary blend of the wood and resin particles before the traditional blender comes into operation