

**Contract No:** FP7-SME-2013-605036-ECOPRESSWOOD

**Title:** Formaldehyde free Bio-Based thermosetting resin for wood pressed products

**Duration:** 01/03/2014 - 28/02/2017

**Abstract:**

Pressed wood panels are produced from wood particles/fibres/strands/veneers which are glued together using adhesives (resins). The wood-adhesive matrices then are formed into mats and pressed under heat into the final product. Most of these adhesives are petroleum based products containing formaldehyde as a co-monomer, generating concern about formaldehyde emissions. The acceptable levels of formaldehyde in pressed wood panels have been reduced over the past decades due to increased public awareness on its effects on health and the consequent consumer demand for non-hazardous products.

The current situation in Europe is that the Committee for Risk Assessment of the European Chemicals Agency has recommended reclassifying formaldehyde from category 2 "suspected human carcinogen" to category 1B "substance which is presumed to have carcinogenic potential for humans". This reclassification is expected to be valid by January 2016 and it will probably have an impact on EU standards with regard to formaldehyde emissions at the work place and from wood panels. In turn, this will affect the competitiveness of European woodworking industry which will be forced to reduce, or even eliminate, the use of formaldehyde resins in wood panels.

The development of renewable resins which can be effectively used as substitute for the petroleum formaldehyde-based resins is one of the biggest challenges for the wood industry.

The aim of ECOPRESSWOOD project is to develop "formaldehyde-free" adhesives for wood-based panels that combine bio-based chemistry, nanotechnology and process engineering.

To be cost competitive and environmentally friendly, these new adhesives will be produced using as raw materials residues from biodiesel production. In addition, ceramic nanoparticles are studied as additives of the formaldehyde-free adhesives, in order to improve the performance of the wood-based panels produced with them.

CHIMAR work is focused on the scale up of the production process of the new bio-based adhesive to be developed within ECOPRESSWOOD.