

PROJECT OBJECTIVES:

The increasing demand for recycled wood to produce particleboard and MDF panels has resulted in the need to improve the cleaning process of post-consumer wood (e.g. pallets/wood packaging material, demolition waste, used furniture), eliminating in a more effective and efficient way plastic impurities. Now MDF panels are mainly obtained from virgin wood and only a small number of producers use post-consumer recycled wood (up to 10%, based on PAL internal studies on the market), because:

- the process requires multiple steps of cleaning that are not enough to completely remove impurities
- MDF panels are of low quality and not compliant with EN 622-5 and EPF Standard for delivery conditions of recycled wood.
- there are not systems in the market capable of achieving a good removal of impurities (see the State of Art paragraph).

LIFE+ PLASTIC KILLER main objective is to set up and demonstrate the viability of an energy efficient pilot plant able to finely separate post-consumer recycled wood from plastics impurities, in order to use it primarily for MDF panels production and secondarily as "purified" biomass.

This project will contribute to:

- pave the way for a new generation of more sustainable and affordable MDF panels produced by up to 60% of post-consumer recycled wood, compliant with EN 622-5 and EPF Standards;
- produce "purified" post-consumer wood that can be also introduced in the EU market as biomass for energy production, reducing the dioxin produced during the combustion;
- limit the use of virgin wood, supporting the non deforestation through the prolonged lifecycle of the recycled wood;
- foster the post-consumer wood recycle approach in the EU, open up new business and jobs opportunities; this also will contribute in the middle perspective to decongesting dumps.
- demonstrate the socio-economic and environmental sustainability, the potentialities of market replication and penetration of the proposed pilot plant.



This project is funded by
the European Community

Total Cost: €1.874.423
(contribution LIFE+: 49.78%)



Partner



CEPRA



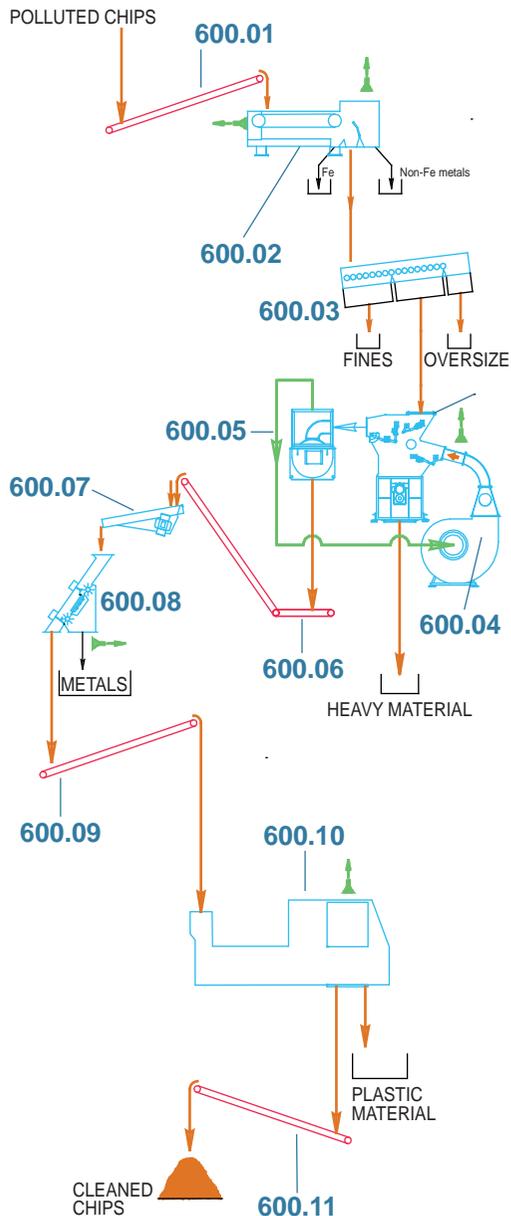
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EXPECTED RESULTS

(OUTPUTS AND QUANTIFIED ACHIEVEMENTS):

- According to more achievable targets within the new time span, the following estimations are provided: input power of about 58kW maximum, a flow up to 30m³/h of waste (post-consumer wood).
- If we assume that the pilot will treat 78t/day of waste (post-consumer wood) and that from PAL's experience it's possible to estimate that there are about 0.78t/day of plastic impurities in this waste, 0.741t/day of plastic impurities can be eliminated and further recycled.
- Considering in a conservative way that 130t/day of virgin wood are needed to produce about 130t of MDF panels, the pilot plant will replace 78 t/day of virgin wood with the purified post-consumer wood, corresponding to avoid the cut of 40 trees per day from local forests. In addition, assuming that i) 0.9t of CO₂ are trapped in 1m³ of tree, ii) 9,600trees/year are not mobilised and transported by truck, iii) an average CO₂-emission factor for road transport operations of 62g CO₂/tonne-km [McKinnon 2011] and iv) an average distance from forest to sawmill of 300km [Le Net. 2011], additional CO₂ savings are possible. The whole CO₂ trapping and saving amount is about 88teCO₂/day.
- Under the assumption of the Life+ project time span and treating 78 t/day of waste (post consumer wood) in such demonstrating context, the challenging but realistic targets can be reformulated as follow: the estimated annual savings of water by PLASTIC KILLER are about 9,288m³, corresponding to the annual water consumption of about 46European families.
- Considering the Life+ time span in a pilot configuration and that the PLASTIC KILLER pilot is going to substitute in weight = 78t/day of virgin wood with the purified post-consumer wood in MDF panels production, there will be enormous economic savings that justify the proposers investment in the project. In fact, assuming the following as average costs (70€t virgin wood or pre-consumer wood; 40€t post consumer wood), the economic savings are about 2,340€day (503,100€year)
- In a pilot configuration, it is expected that using 78t/day of post-consumer wood, the pilot plant will eliminate about 741kg/day of plastics impurities out of 780kg/day, which will avoid the dioxin emission of about 563ng TEQ/day (considering a density of 150kg/m³ and the estimation from Schatowitz, see section B2).

LIFE12 ENV/IT/000374



RECY CLEANING TOWER

600.01: BELT CONVEYOR
600.02: INDUCTION GRADING MACHINE
600.03: DYNASCREEN
600.04: AIR RECYCLING CLEANER
600.05: FILTERING VALVE
600.06: BELT BOARD CONVEYOR

600.07: VIBRATING FEEDER
600.08: METAL KILLER
600.09: BELT CONVEYOR
600.10: PLASTIC KILLER
600.11: BELT CONVEYOR



LIFE ABOUT LIFE+ PROJECT

20/11/2013 Kick Off Meeting of LIFE+ projects 2012

The Project Coordinator Dr. Giuseppe Pinese and Financial Manager Dr. Marco Pizzolla attended the 8th November 2013 to Kick-Off meeting which was held in Rome for the Italian launch of 55 projects that have received Community funding in the framework of Call 2012. The meeting was attended by officials of the Directorate General Environment of the European Commission, the National Focal Point, part of the Monitoring Team Astral-Timesis and beneficiaries of the Italian projects that have been selected.

18/12/2013 First Plastic Killer activity

Analysis of some samples of the main typologies of wood, plastic and other pollutants, laminated, panelboard, glass, stones by the spectrophotometer in Unipd

03/02/2014 PLASTIC KILLER at WoodMac Fair

The project "LIFE12 ENV/IT/000374 was presented at the WoodMac fair in Beijing – CHINA

26/02/2014 PLASTIC KILLER at Indiiwood

The project "LIFE12 ENV/IT/000374 was presented at the Indiiwood fair in Bangalore – INDIA

28/02/2014 PLASTIC KILLER AT XYLEXPO EUROPEAN PRESS CONFERENCE

In February, Thursday 27 and Friday 28, about forty journalists of the Italian and European industry press gathered in Milan for the press conference introducing Xylexpo 2014.

The press conference was held in the morning of Friday 28 in the wonderful setting of the Cenacolo Room, at the Museo nazionale della scienza e della tecnologia "Leonardo da Vinci" in Milan. Besides the Acimall management, the panel of speakers included Enrico Pazzali, general manager of Fiera Milano, and

a well-known entrepreneur of the wood/furniture industry. Their task was to inform journalists about the program from 13 to 17 May, as well as to highlight the collaboration with one of the world's most modern exhibition centers and the contribution that woodworking technology has been offering to the furniture and design sector.

13-17/05/2014 APPOINTMENT AT XYLEXPO!

The project LIFE12 ENV/IT/000374 has been presented at the Xylexpo fair in Milan – ITALY.

At the Xylexpo exhibition the PAL has presented the innovative project which have been co-funded by the European Union under the LIFE+:

PLASTIC KILLER, a system for cleaning the recycling wood from plastics so as to use it instead of virgin wood in the production of high-quality panels or clean fuel.

The project has been presented at the IMAL PAL booth Q11, hall 2 on Tuesday 13th May at 11:00 a.m.

19/05/2014 XIA-XYLEXPO INNOVATION AWARDS

PAL has participate at Xia-Xylexpo innovation awards with the project LIFE12 ENV/IT/000374 – Plastic Killer at the Xylexpo fair in Milan – ITALY

01/07/2014 ACIMALL ASSEMBLY

On June 27th Plastic Killer project LIFE12 ENV/IT/000374 was exposed at "Acimall Assembly". Audience: about 60 manufacturers of woodworking machines.

07/08/2014 APPOINTMENT AT IWF

The project LIFE12 ENV/IT/000374 has been presented at the IWF fair in Atlanta – U.S.A. PLASTIC KILLER, a system for cleaning the recycling wood from plastics so as to use it instead of virgin wood in the production of high-quality panels or clean fuel.