



Project Information Sheet

Cardanol based PVC plasticizer (PLACARD)

Programme area:	Green Business – Bio based products
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Partners:	Serichim Srl, Italy University of Salento, Italy European Plastic Converters (Belgium)
Website:	under construction
Benefits (max. 150 characters incl. space):	Substitution of fossil resources with bio based products (not useful for human feeding); Production of eco-sustainable products for building field.
Keywords:	Soft PVC; cardanol; phthalates; plasticizers; bio-based; window gaskets
Sector:	CIP-EIP-2012.4.10- Bio based products
Type of solution	Natural derived plasticizer derived from cardanol and related soft PVC
Duration:	01/01/2014 – 31/08/2016
Budget:	€ 987.402 (EU contribution: 50%)
Contract number:	ECO/12/332833/SI2.665957

Summary

Worldwide, about 70% of the soft PVC is produced using phthalate plasticizers, in particular di-ethyl-hexyl-phthalate (DEHP), which are synthetic esters of phthalic acid, characterized by acute toxicity. As a consequence the EU banned phthalates for some applications, in which the plasticizer migration can make them harmful to human health. Besides phthalates are synthetic, oil derived products, and therefore have a significant impact on the carbon dioxide balance. Consequently, in recent years, phthalates have been subjected to major revisions, leading to severe restrictions in their use by the EU. On the other hand, most of the alternative plasticizer suffer for a plasticizer effectiveness lower than that of DEHP, and for the increased cost. Currently, the cost of alternative plasticizers such as adipates, trimellitates and citrates is 50%, 100%, and 140% higher than that of DEHP, respectively. In these cases a plasticizer content of 50 phr, involves a cost increase of soft PVC about 60%.

The innovative idea promoted by this project, which applies to products to be used in the civil construction market, is to **substitute phthalates by eco-friendly, natural derived plasticizers derived from cardanol**. The result of the idea is the reduction of environmental and toxicological impact of soft PVC, though maintaining mechanical, physical and durability properties comparable to those of conventional, phthalate based, PVC.



Expected and/or achieved results

The PLACARD project proposes the first application of new production process for an environmentally friendly PLASTICIZER FOR SOFT PVC. The product promises improved environmental/economic sustainability and replicability in a joint-venture approach between chemical industries and a European network of plastic converters SMEs. The final products will be developed for building sector. The specific objectives are:

- To Demonstrate economic and environmental sustainability in a first-time industrial application of the innovative process;
- Securing medium term return-on-investment by preparing and developing the market for up-take-, i.e. market testing of the innovative PVC plasticizer and new business models with chemical companies, plastic converters and directly with consumers;
- Preparing and stimulating European replication developing a receptive network of SMEs active in soft PVC production, to exploit the business model together with the relevant European organizations.