



ERUTAN®

A new business concept design for natural fibre carpets with a 100% closed biological cycle

back to nature 



ERUTAN: a project developed by the ERUTAN Consortium, existing of partners Best Wool Carpets B.V., James B.V., Qualizyme and Universitat Politècnica de Catalunya with the support of Eco Innovation

The difference ERUTAN® makes



Traditional carpet



ERUTAN® carpet

Call Identifier: CIP-EIP-Eco-Innovation-2008

ERUTAN ECO/11/304532

LAYMAN REPORT

Date released: 29-04-2016



eco-innovation
WHEN BUSINESS MEETS THE ENVIRONMENT

Project Overview

Content

1. Project Overview

2. What will ERUTAN bring into the EU Carpet Production?

3. What are the potential markets for ERUTAN Carpet Production and what is the demand of the market?

4. Contacts

WHAT is the Project about?

Over the three year duration of the ERUTAN project, the objective was the first industrial application of the eco-innovative solution called ERUTAN - a revolutionary way of carpet production.

ERUTAN is an integrated business concept for the production of the new ERUTAN carpet composed of entirely ecological, pesticide and heavy metal free, traceable wool and a backing that consists entirely of natural ingredients

ERUTAN wool is scoured in a patented by the consortium, revolutionary new, detergent-free process.

The patented, natural ingredients-based backing paste of ERUTAN carpet can be removed after use, making possible the retrieval of all yarns undamaged from the carpet and reuse them for carpet production of new carpets or other useful applications.

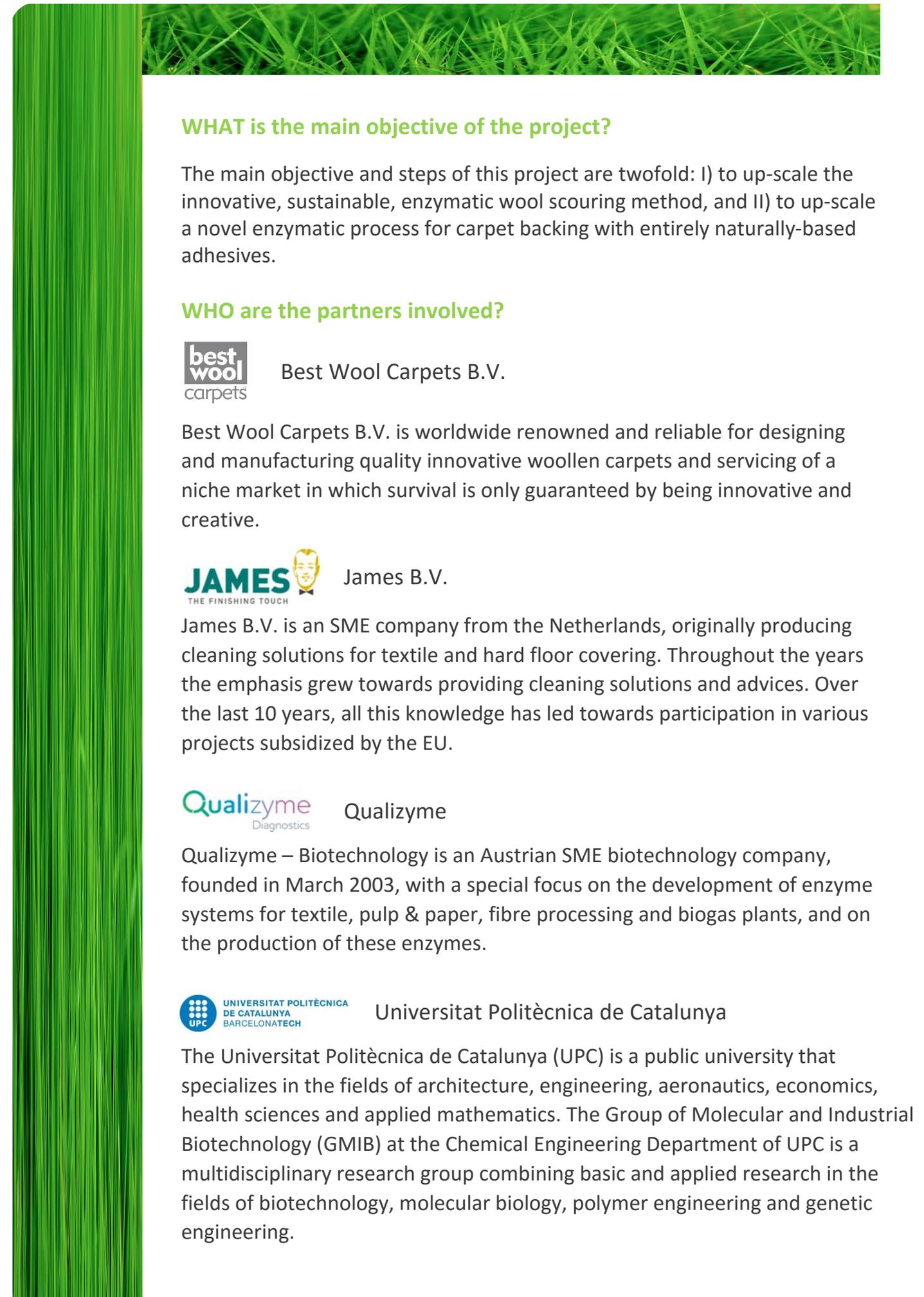
WHY is the ERUTAN business concept interesting?

The ERUTAN business concept responds to the shortage of raw materials and the carbon footprint in the carpet industry . ERUTAN also provides a safe working environment using entirely biological and chemical free processes. Being 100 % recyclable ERUTAN is safe to the users and the environment.

In conventional wool scouring harsh chemicals and high process temperatures are applied, while the ERUTAN wool scouring method employs enzymes and microbubbles at temperatures safe to the properties of wool. The ERUTAN scouring process is more energy efficient and environmentally friendly.

The conventional carpet backing is carried out at elevated curing temperature necessary for the crosslinking of the latex adhesive. Once the latex, representing 70% of the weight of the carpet, is crosslinked it becomes impossible to be recycled and only minor part of short length, low quality wool yarns can be retrieved.

By contrast, the ERUTAN backing adhesive paste, composed only of natural, biodegradable ingredients, is crosslinked using enzymes at a 3 times lower temperature. The bio-based ERUTAN adhesive is entirely biodegradable and allows for complete fibre recovery. The ERUTAN backing line is considerably more energy efficient and the working conditions are significantly improved. ERUTAN, stands for ethical manufacturing and for 100% closing of the biological circle, complying with the “cradle-to-cradle” concept.



WHAT is the main objective of the project?

The main objective and steps of this project are twofold: I) to up-scale the innovative, sustainable, enzymatic wool scouring method, and II) to up-scale a novel enzymatic process for carpet backing with entirely naturally-based adhesives.

WHO are the partners involved?



Best Wool Carpets B.V.

Best Wool Carpets B.V. is worldwide renowned and reliable for designing and manufacturing quality innovative woollen carpets and servicing of a niche market in which survival is only guaranteed by being innovative and creative.



James B.V.

James B.V. is an SME company from the Netherlands, originally producing cleaning solutions for textile and hard floor covering. Throughout the years the emphasis grew towards providing cleaning solutions and advices. Over the last 10 years, all this knowledge has led towards participation in various projects subsidized by the EU.



Qualizyme

Qualizyme – Biotechnology is an Austrian SME biotechnology company, founded in March 2003, with a special focus on the development of enzyme systems for textile, pulp & paper, fibre processing and biogas plants, and on the production of these enzymes.



Universitat Politècnica de Catalunya

The Universitat Politècnica de Catalunya (UPC) is a public university that specializes in the fields of architecture, engineering, aeronautics, economics, health sciences and applied mathematics. The Group of Molecular and Industrial Biotechnology (GMIB) at the Chemical Engineering Department of UPC is a multidisciplinary research group combining basic and applied research in the fields of biotechnology, molecular biology, polymer engineering and genetic engineering.

2. What will ERUTAN bring to EU Carpet Production?

Waste	ERUTAN®
<ul style="list-style-type: none">• Shearing off the pile and burning in incineration  <ul style="list-style-type: none">• Only 20% recycling, waste, energy lost	<ul style="list-style-type: none">• In a 100% closed biological cycle only by traceable wool  <ul style="list-style-type: none">• No waste, environmentally friendly re-use

Enzymatic wool scouring enhanced by microbubbles

ERUTAN has developed a revolutionary method for wool scouring based on the application of enzymes and microbubbles, at low process temperatures, entirely eliminating the aggressive reagents and high energy consumption in the conventional scouring processes.

The industrial scale trials revealed that a longer process times, due to the mild processing conditions applied, was required resulting in postponing the radical reconstruction of the conventional scouring plant . Therefore, investors will be sought for the building of a smaller ERUTAN scouring plant in close proximity to the wool providers. This scouring facility will allow the sheep farmers to scour their own wool *in situ*, realizing a considerably better price than for the raw un-scoured wool.





Enzymatic carpet bonding

The ERUTAN consortium has developed a revolutionary enzymatic method for carpet bonding based on the application of a natural ingredients-based backing paste combining linseed oil and lignin.

This new backing paste can be dissolved or biodegraded after the carpets lifespan recovering all wool fibres intact.

Dealing with natural compounds produced currently in small volumes and for other than adhesives purposes, together with the use of enzymes make the backing paste expensive compared to the conventional latex. However, its added value combined with significantly reduced energy consumption and zero carbon footprint will compensate this disadvantage. Industrial trials are on-going, after which Best Wool Carpets will start building the backing line according to the new principle in their recently finished new production hall at the beginning of 2017.



Significant contribution to the EU targets in terms of eco-innovative solutions

In line with the Eco-innovation Action Plan (EcoAP) ERUTAN is a demonstrable progress towards the goal of sustainable development, through reducing the impact of wool and carpet industry on the environment and achieving an efficient and responsible use of natural resources. The “all natural” ERUTAN manufacturing concept contributes towards the development of environmental technologies, products and services, and ultimately, to the transition towards a green economy in a "Resource Efficient Europe".

Conclusions



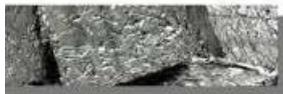
- 100% closing of the biological cycle



- Carbon footprint



- Environmentally friendly



- No waste

3. What are the potential markets for ERUTAN carpet Production and what is the demand of the market?

Wool scouring process

The consortium, together with Dawson, will investigate the opportunity to build small, low costs scour lines made out of plastic instead of steel that can be used in farming communities around the world.

Sheep farmers currently are getting a low price for their wool because it is a raw product that further needs to be processed.

When these communities are able to offer an end product through the sales network of H. Dawson they will enable to get better prices and ERUTAN will get more traceable wool.

To protect the interest of ERUTAN we have secured the patent in the most important wool markets.

Carpet bonding process

ERUTAN's carpet bonding process will be operational in 2017.

The installation of the backing line at Best Wool Carpets is scheduled for summer 2017 and at the latest by the end of 2017, after which Best Wool Carpets can start producing ERUTAN carpet. In 2017 Best Wool Carpets intends to produce 250.000m² carpet finished with the ERUTAN backing technology.

Once the machinery is operational already found partners intend to start with their first 100.000 m² carpet finished with the ERUTAN backing technology.

In 2018 the planning is to produce 2.0 million m² of ERUTAN carpet by Best Wool Carpets and partners, where for 2019 it is planned that these manufacturers produce 5.0 million m² of ERUTAN carpet together.



4. Contacts

Te bepalen.