



ecodefating



LIFE ENV/IT/ 000470 LIFE ECODEFATTING

<u>ACTIVITY</u>	<u>RESPONSIBLE</u>	<u>STAKEHOLDERS TARGETED</u>	<u>RESOURCES</u>	<u>DURATION AFTER THE PROJECT END</u>
PARTICIPATION AT NETWORKING EVENTS	UNIFI AND INESCOP	TANNERY TECHNICIANS AND BUSINESS MANAGER	OWN RESOURCES	2 YEARS
DISTRIBUTION OF BROCHURES AND LEAFLETS	ALL BENEFICIARIES	GENERAL PUBLIC, TANNERY TECHNICIANS AND BUSINESS MANAGER, RESEARCHER AND SCIENTISTS	OWN RESOURCES	5 YEARS
DIFFUSION OF VIDEO AND MULTIMEDIA MATERIAL	ALL BENEFICIARIES	GENERAL PUBLIC, TANNERY TECHNICIANS AND BUSINESS MANAGER, RESEARCHER AND SCIENTISTS	OWN RESOURCES	5 YEARS
CONTACTS WITH TANNERIES IN SPAIN	INESCOP	TRADELDA, TENERÍAS OMEGA, S.A.	OWN RESOURCES	1 YEAR
CONTACTS WITH LEATHER COMPANIES IN SPAIN	INESCOP	DIVISIÓN ANATÓMICOS, S.L., PROYECCION, ACN, DECHICS, S.L.	OWN RESOURCES	1 YEAR
CONTACTS WITH TANNERIES IN ITALY	NEWPORT	GHEPARDO, CARASCO, VOLPI	OWN RESOURCES	1 YEAR
CONTACTS WITH SHOE MANUFACTURERS IN ITALY	NEWPORT	MUSTANG, SANTA MARIA	OWN RESOURCES	1 YEAR
CONTACTS WITH LEATHER COMPANIES IN ITALY	NEWPORT	GIOVANNI, RUFFO, MACIP TREND	OWN RESOURCES	1 YEAR
CONTACTS WITH LEATHERS CENTERS IN EUROPE	INESCOP AND NEWPORT	COTANCE	OWN RESOURCES	1 YEAR
CONTACTS WITH POLICY MAKERS IN ITALY	UNIFI	COUNCILLOR FOR THE ENVIRONMENT OF PISA CITY – ITALY, ENVIRONMENTAL DEPARTMENT OF PISA AREA – ITALY AND SENATOR OF THE ITALIAN GOVERNMENT	OWN RESOURCES	6 MONTHS

# AFTER LIFE Communication Plan

“Environmentally-friendly natural products instead of chemical Products in the degreasing phase of the tanning cycle”



## THE PARTNER

DISPAA - Università di Firenze



ICCOM - CNR

NEWPORT srl

Newport S.r.l.



INESCOP

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## ECODEFATTING RESULTS

Ecodefatting demonstrated a new category of defatting agents for the leather industry. These formulations contained chemical species derived from naturally occurring compounds (lactose and citric acid) assuring the sustainability of their production. The Ecodefatting project aimed at innovating the defatting process for hides, replacing old fashioned chloroparaffins and alkyl phenols and reducing the amount of ethoxylated alcohols involved in the process. The environmental goal of the project was to improve the safety profile of the leather business, taking into account the environmental compatibility and the eco-sustainability of leather goods manufacturing. Ecodefatting demonstrated that the new EDF formulations had the drive for a significantly eco-sustainable and convenient business for tannery companies.

The specific technical goals of the project were distributed within a series of actions, demonstrating the defatting efficacy of the new formulations. Further, microorganism based degradation of tannery's effluents was an additional downstream goal of the project, in order to allow the reuse of water and thus, the reduction of its consumption.

The major contributions of Ecodefatting for the protection of the environment and a sustainable development of the leather business were:

- the design of synthetic chemistry in compliance with the EU REACH regulation (No.1907/2006) for the production of the lactose based compounds;
- the use of milk serum as a primary source of "lactose", to generate the lactose derived species;
- the use of defatting formulations with a reduced percentage of ethoxylated alcohols and without chloroparaffin or other chlorine related compound;
- the use of eco-friendly bioremediation technologies, to achieve the purification of tanneries' wastewaters in aerobic conditions.

The project obtained the specific following technical results:

- characterization of 4 commercial products for defatting sheep skin samples at laboratory level and characterization of the skin specimens for their chemical and mechanical properties (20 analyses) and molecular features (8 analyses);
- 6 lactose derivatives and 27 EDF formulation produced for defatting at laboratory level;
- 27 EDF formulations demonstrated at laboratory level for application on sheep skin samples and characterization of the skin specimens for their chemical and mechanical properties (135 analyses) and molecular features (58 analyses);
- 1 formulation (EDF20) chosen for the demonstration at semi-industrial level (10 Kg batches), using different percentages of product, on sheep skins (four demonstrations) pig skins (two demonstrations) and calf hides (two demonstrations) for a total of 35 skin specimens and characterization of the skin specimens for their chemical and mechanical properties and molecular features;
- 2 formulations (EDF19 and EDF20) chosen for the demonstration at pre-industrial level (75-100 Kg) in comparison with production campaigns (2000 Kg) on bovine hides (three demonstrations) and equine hides (1 demonstration) for a total of 55 hide specimens and characterization of the hide specimens for their mechanical properties (48 analyses) and molecular features (8 analyses);
- 6 bags, 4 wallets and 3 pair of shoes produced with the leather, obtained from hide processing with EDF20 formulation;
- 32 analyses for the characterization of the effluents from the use of four commercial products at laboratory level;
- 127 analyses for the characterization of effluents from the use of EDF formulations at laboratory level and 84 treatments with bacteria on 14 selected effluents for the assessment of effluent biodegradability;
- 36 analyses for the characterization of the effluents from the use of EDF20 on three types of skins/hides and 3 treatments with fungi on effluents;

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- 39 analyses for the characterization of the effluents from the use of EDF20 on two types of hides and 12 treatments with activated sludge on effluents.

The main advantages that the introduction of the ingredients derived from natural sources (i.e., lactose and citric acid) brought along, could be summarised as follows:

- simplification of commercial defatting products, that may include up to five different ethoxylated species with apparently negligible contribution to the overall quality of the leather;
- the reduction of the percentage (from 55 to 25%) of ethoxylated species, that can be found in commercial products;
- substitution of raw materials from petrochemical sources with others from natural sources;
- the indirect use of milk serum as a waste material, implying full sustainability for the production of the lactose based species;
- excellent performance of hide defatting, which allowed the definite replacement (100%) of old fashioned defatting agents, such as chloroparaffins, in some cases still in use;
- excellent adaptability of the new formulations to different type of hides and skins, as demonstrations were carried out on bovine and equine hide as well as sheep and pig skin batches of materials;
- 20-50% increase in the mechanical feature of the finished leather, as a result of higher penetration of tanning agents;

## AFTER LIFE DISSEMINATION STRATEGY

<u>ACTIVITY</u>	<u>RESPONSIBLE</u>	<u>STAKEHOLDERS TARGETED</u>	<u>RESOURCES</u>	<u>DURATION AFTER THE PROJECT END</u>
WEBSITE UPDATE	UNIFI	GENERAL PUBLIC, RESEARCHER AND SCIENTISTS	OWN RESOURCES	3 YEARS
PARTICIPATION AT FAIRS LINKED TO TANNERY AND LEATHER SECTORS	ALL BENEFICIARIES	TANNERY TECHNICIANS AND BUSINESS MANAGER	OWN RESOURCES	5 YEARS
DISSEMINATION BY MEANS OF SPECIALISED PRESS	ALL BENEFICIARIES	UNIVERSITY PROFESSORS AND RESEARCHER AND SCIENTISTS	OWN RESOURCES	5 YEARS
NETWORKING	ALL BENEFICIARIES	RESEARCHER AND SCIENTISTS	OWN RESOURCES	5 YEARS
PUBLICATION OF FOUR SCIENTIFIC WORKS TO BE SUBMITTED TO INTERNATIONAL JOURNAL	UNIFI AND ICCOMCNR	UNIVERSITY PROFESSORS AND RESEARCHER AND SCIENTISTS	OWN RESOURCES	1 YEAR
DISSEMINATION IN EUROPEAN ENVIRONMENTAL CENTERS	UNIFI	UNIVERSITY PROFESSORS, RESEARCHER AND SCIENTISTS, POLICY MAKERS, TANNERY TECHNICIANS AND BUSINESS MANAGER	OWN RESOURCES	5 YEARS
ORGANISATION OF WORKSHOP IN SPAIN IN A TANNERY	INESCOP	POLICY MAKERS, TANNERY TECHNICIANS AND BUSINESS MANAGER	OWN RESOURCES	1 YEAR
ORGANISATION OF WORKSHOP IN ITALY IN A TANNERY	NEWPORT	POLICY MAKERS, TANNERY TECHNICIANS AND BUSINESS MANAGER	OWN RESOURCES	1 YEAR
ORGANISATION OF WORKSHOP IN ITALY IN THE ENVIRONMENTAL CENTER	UNIFI	UNIVERSITY PROFESSORS, POLICY MAKERS, TANNERY TECHNICIANS AND BUSINESS MANAGER	OWN RESOURCES	1 YEAR

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