TANNET NEWSLETTER 6

TANNET – A Concerted Action for the European Leather Industry

January 2002

INFORMATION ABOUT THE TANNET PROJECT

The original TANNET project, which was a Concerted Action for the European Leather Industry supported by the EU Environment and Climate Programme started its activities on 1 April 1998 and was finished on the 31 May 2000. The main objectives of TANNET were to:

· build a European network for the leather industry

· recommend a strategy for environmental research for the European leather industry

There has been a large interest for the TANNET-network and we have now more than 280 members.

Due to the large interest, the TANNET network started on the 7th July 2000 a new activity, which is an initiative to stimulate and encourage the European Leather Industry to participate in EU Programmes (supported by the EU-Programme "Promotion of Innovation and Encouragement of SME Participation").

The main objective of this activity is to use the network of tanneries (TANNET) to increase the participation of tanneries in EU Programmes.

At this stage, the TANNET-network has initiated about 20 proposals to the EU Programmes. The European Commission has approved more than 50% of the proposals. Furthermore, some proposals are at the moment being evaluated by the European Commission.

As part of the work-programme, four brokerage events/workshops were organised in 2001. These events took place in Italy, Greece, Portugal and United Kingdom. The workshops were a success and were attended by, in total more than 375 participants (mainly tanneries).

The TANNET-project will finish on the 7th January 2002. Due to the good results, there is a clear need to continue with TANNET in the future. There will also be a possibility to obtain financial support for accompanying measures in the EESD-programme and the Growth-Programme (deadline 28th February 2002). The core group members of TANNET has discussed future ideas for proposals and the plan is to continue with the TANNET-network

CRAFT Projects

There is one deadline remaining for CRAFT-proposals in the Fifth Framework Programme. The final date for proposals is.

28 February 2002

The European Commission has decided to move the deadline of the SME Specific Measures forward to 28th February 2002 for applications for CRAFT (co-operative research) projects.

Two other CRAFT cut-off dates that previously existed under the SME Specific Measures – in January and April 2002 –have been cancelled.

EESD-PROGRAMME - EXTENSION OF CONTRACTS TO INCLUDE PARTNERS FROM NAS-COUNTRIES

This call relates to proposals called by a fixed deadline. The indicative budget for this call is 10 million euro.

Proposals for partnership extension of projects currently running will only concern the integration of new participants from the NAS: Bulgaria, Republic of Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia. One or more new partners from NAS may be included in the extension.

The additional participants should clearly add value to the existing projects. The duration of the existing contract should be such that an extension to partners from NAS is useful. It is recommended that the minimum duration of an existing contract is at least one year running from the request for extension (deadline 15 February 2002) until the end date of the existing contract.

Proposals can be submitted for all activities of the programme 'Energy, environment and sustainable development - Part A', and should be submitted by the coordinator, acting on behalf of all the existing participants in the project, together with the new participants from the NAS.

The deadline for submitting proposals is 15.02.2002. More information can be found on the CORDIS Homepage (www.cordis.lu).

The Quality of Life and Management of Living Resources also have a similar call for proposals to include partners from NAS-countries in ongoing projects. The deadline for proposals is 15.02.2002

FOUR TANNET WORKSHOP IN 2001

The TANNET project organised four workshops in 2001 with the participation of more than 375 participants. The workshops took place at the following occasions:

Bologna, Italy 11 May 2001
Athens, Greece 24 May 2001
Birmingham, UK 1-2 Nov. 2001
Porto, Portugal 23 Nov. 2001

More information about the workshops can be obtained from the project co-ordinator. CD-ROMs from the workshop in Italy and United Kingdom are available.

WORKSHOP on Training Needs in the Leather Sector

In the framework and with the support of the European Social Dialogue, a workshop and conference to design a training strategy for the leather industry is taking place on the 26th and 27th March 2002 in Italy, Turin.

The workshop is organized by COTANCE, ETUF:TCL, UNIC and FEMCA-CISL and the event will be held at the premises of the Chamber of Industry in Turin which also hosts a special leather technology exhibition of the oldest School of Tanners in Europe, the Baldracco Institute.

This project developed in the framework of the Social Sectoral Dialogue aims at identifying the European Leather Industry's training needs and means for fulfilling them.

The objective of the workshop is to gather a majority of stakeholders in the European tanning industry: tanneries, chemical and technology suppliers and other sectoral operators, research and training centres, schools, universities as well as public institutions involved in the different countries.

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Sixth FRAMEWORK PROGRAMME

The preparations for the New Framework Programme have started and the first proposal for the Next Framework Programme is now on the table. The proposal was presented by the research Commissioner Philippe Busquin in February 2001. The new research framework programme will be implemented during a four-year period (2002-2006). The proposed budget is 17.5 billion Euro, meaning a 17% increase in funding.

The first proposal for the 6th Framework programme have selected seven thematic areas in order to focus on areas where EU actions can add the greatest possible value. These areas are:

- Genomics and biotechnology for health
- Information Society technologies (relevant for the leather industry)
- Nanotechnologies, intelligent materials, new production methods (relevant for the leather industry)
- Food safety and health risks
- Sustainable developments and global change (relevant for the leather industry)
- Citizens and governance in European society (relevant for the leather industry)

To ensure the focusing of efforts in these priority thematic areas, EU action will be implemented through three major instruments. These are:

1. Integrating European Research
   - Networks of excellence
   - Integrated projects
   - EU participation in research programmes of the member states
   - Anticipation of EU's scientific and technological needs, including specific research activities for SMEs and specific international activities

2. Structuring the European Research Area
   - Research and Innovation
   - Human resources and research mobility

- Research Infrastructures
- Science/society issues

3. Strengthening the foundations of the European Research Area
   - Co-ordination between national and European Research programmes

The majority of the European funding (around 78%) will be allocated to "Integrating European Research" and especially the integrated projects.

There are several positive and interesting aspects for the European Leather industry related to the new Framework Programme. Two of them are described below:

1. Integrated Projects. It is anticipated that only bigger integrated projects, above 10 Million €, would be the preferred route for the Commission support instruments. The leather industry has now developed the necessary tools through the TANNET network in order to present proposals for integrated projects. It is expected that the TANNET-network will initiate integrated projects clustering different research projects and involving all stakeholders in joint projects.

2. Specific research activities for SMEs

These actions, which may be carried out in the entire field of science and technology, will take the form of:

- Co-operative Research Projects (CRAFT projects) will continue in the 6th Framework programme and it is an excellent tool for SMEs in the leather sector. The activity include research activities carried out by research centres for a number of SMEs in different European countries on themes of common interest or by high-tech SMEs in collaboration with research centres and universities.
- Collective Research Activities is a new initiative. It includes research activities carried out by technical research centres for industrial associations or industry groupings in entire sectors of industry dominated by SMEs at European level (like e.g. the leather industry). Collective research activities may play an important role for the leather sector in the future.

TIMETABLE FOR THE sixth FRAMEWORK PROGRAMME

The timetable for adoption of the next framework programme will be dependent on the progress of the political debate and decision-making processes. An indication of the steps to be taken, according to the current procedures can be found on the cordis-homepage www.cordis.lu/rtd2002/fp-legal/roadmap.htm. The start of the programme and launch of calls for proposals is expected to be in the beginning of 2003.

Examples of Interesting Projects

Examples of relevant and promising Euro-pean projects in the environmental area are given below.

Membrane applications for recycling and recovery in the leather industry
Tanweek
Gasification of leather waste - From research to full-scale application
Restorm

Membrane applications for recycling and recovery in the leather industry

Contract ENV4-CT97-0613

This project was carried out for 30 months (April 98 - September 2000) with 8 partners under the coordination of BLC.

Objective

The aim of the research project was to prove the feasibility of recycling individual spent liquors or recover water suitable for re-use. A choice of tubular ultrafiltration (UF), hollow fibre and spiral type membrane modules were tested from microfiltration to nanofiltration. Membrane applications tested in pilot plants included: Recovery of sulphide from spent unhairing baths; the recovery of syntans from spent retanning liquors; recycling of surfactants and recovery of natural oils from degreasing operations; concentration of chemicals such as chrome and dyes for recycling; the enhanced treatment of effluent to reduce colour, COD, dissolved salts and toxins by integration with bioreactors for compact biological treatment.

Results

The recycling of lime and sulphides from spent unhairing liquors gave promising results. Sulphide recovery gave good results and 75% of proteins could be removed. The sulphide containing permeate could be recycled back into the unhairing process. Similar trials were carried out to recover syntans. Spent liquors were passed through the UF membrane and a further treatment with nanofiltration as a polishing step gave effective recovery of syntans. In further trials, fats were concentrated from 8 g/l to 35 g/l. Consequently very low fat concentrations in the permeate of 23 mg/l were found allowing an environmentally friendly aqueous degreasing. Microfiltration membranes with various additives (eg, coagulants, silica powder and clays) were tested for effective chrome recovery. High and stable permeate fluxrates and complete retention of chrome could be achieved. Research also involved membrane bioreactor (MBR) trials for the treatment of mixed tannery effluents containing less degradable organic pollutants. An MBR sludge concentration of 30-50 g/l could be achieved, enabling the highly efficient biodegradation of recalcitrant pollutants by acclimatized biomass in retention times of 12-24 hours. Extensive experimental trials were performed to determine the comparative performance of various membrane modules for biomass separation and the overall MBR process performance. This resulted in a high quality permeate (80-90% COD and 90-98% BOD reductions and 100 % removal of suspended solids) which may be re-used as process water, achieving a potential closed loop production.

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TANWEEK

Objectives

The objective of this project is to raise public awareness for scientific activities and technological developments in the leather industry and thereby bridge the gap between the public and the leather industry.

Work programme

The following activities will be carried out in TANWEEK.

- Production of a brochure in 6 languages
- Production of a short video
- Creation of a web-site
- 1-day seminar in Italy, Spain, Greece, Portugal and Sweden

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Gasification of leather waste - From research to full-scale application

Summary

Borge Garveri in Lonevåg, Norway has invested in a solid waste treatment plant that will convert all wastes generated by the tannery to energy, slag and metal. The plant is fully integrated with pretreatment, gasification, gas cleaning and energy production. The energy produced is in the form of electricity, steam and hot water. The metal will be sold and the slag is unleachable and can be landfilled. The total reduction of the volume is 95%. The energy from the waste will replace all use of fossil fuel in the tannery, and cover about 60% of all energy needed. The capacity of the plant is 2 tons of wet waste, giving 700 kg of dried waste per hour. The capital investment was £ 3.5 Million and the pay-back time will be 12 years.

Background

The first trials using gasification of leather waste started in the EU-supported project Process Technology for the Recovery and Recycling of Chromium from Leather Waste and Sludge (EN5V-CT94-0542). Chrome shavings were gasified at the pilot gasifier at the Danish Technological Institute with good result.

The Borge Tannery has been in operation for more than one hundred years and the focus on environment has been important for the company. The tannery had to do something with their waste since they have a water treatment facility generating sludge, the limed fleshings were no longer needed as glue and chrome-containing wastes from the tannery were classified as hazardous waste. After looking at various processes, Borge tannery decided upon gasification and trials were made with the waste at the pilot gasifier at the Danish Technological Institute in co-operation with BLC, UK. The results were promising and the company decided to build a full-scale plant.

Process

The plant consists of the following:

- Pretreatment
- Gasification
- Gas cleaning
- Energy production

Pretreatment consists of mixing, drying and bricketting. The brickets are used together with shredded dry material like wood and plastics, in the following process.

Gasification is done in a counter current up-draught gasifier. This type was preferred due to its ability to be used at high temperatures. In this process, the slag and metals separate by gravity.

Gas cleaning is performed using a plasmagenerator that heats the gas up to 4000ºC, cracking all organic compounds in the gas, excluding the formation of dioxins. Further steps are cooling and a 2-step scrubber, with an electrostatic filter at the end, giving a perfectly clean gas with a good calorific value.

Energy production is done by burning the gas in a steam boiler, and by a combustion engine driving an electric generator. The water used to cool the plant is used directly by the tannery.

The process takes care of all the wastes from the tannery in an environmental acceptable manner.

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Restorm

Objective

The aim of RESTORM is to conduct research directed at resource management, that will assist the European tanners to change production methods to ensure a sustainable manufacturing industry for the future. In order to transform the leather industry into one that has a sustainable future, it is necessary to adopt radical and integrated approaches to changing the way in which resources are managed. To remain competitive in the global marketplace, European leather producers must move away from producing waste, which has high adverse environmental and cost implications, to a production regime where traditional 'waste products' are either reused/recycled or converted into new, higher value products. In addition, the consumption of resources will be minimised.

Workprogramme

The work is divided into seven workpackages and the consortium consists of 15 partners representing 8 European Member and Associated States. The following results are expected for the leather industry.

Short term

- 100% utilisation of protein containing solid waste from beamhouse for production of value added products (ecodhesives, films, construction auxilliaries, gelatin)
- Mathematical and physical modelling of beamhouse operations
- 90% recovery of water through membrane filtration
- Technical evaluation of permeate for leather processing
- 100% removal of sulphate through anaerobic digestion
- Production of CO_2 for reuse in deliming operations
- Chemical savings amounting to 30%

Medium term

- Four new enzyme activities identified to hydrolyse non collagenous components of skin
- 100% reduction in sulphide and lime for depilation
- 80% reduction in COD from beamhouse processing
- Zero ammonia discharge

Long term

- Novel collagen based textile with leather-like properties produced
- Smart biomedical materials produced containing active components
- Exploitation of hyaluronic acid in biomedical and industrial applications

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Members in TANNET

The Danish Technological Institute is co-ordinator in this project and working very closely together with *The Confederation of National Associations of Tanners and Dressers of the European Community* (COTANCE). Furthermore, national focal points have been established in the different member states. Generally, the leather research centres in the different EU-countries have been appointed as national focal points. You will find the TANNET Membership here.

Corresponding Members

At the present moment, TANNET has approximately 280 members and many tanneries and other stakeholders have showed an enormous interest for the initiative.

List of Research Priorities

The list of research priorities for the European leather Industry follows below

Water

Reduction and monitoring of non-ionic polyethoxylated (NPEO) surfactants in wastewater from degreasing operations.
Efficient management of water in tanneries in order to reduce water consumption.
Advanced wastewater treatment units leading to open or closed-loop recycling of water.
Reduction/treatment of sludge from tannery effluent treatment plants.
Small and cost-effective treatment plants for specific tannery effluents.
Reduction of the salt-discharge from tanneries (both chlorides and sulphates are priority substances).
Assessment of the long-term environmental impact of tannery contaminated sites on e.g. groundwater.
Development of remedial technologies for tannery contaminated sites.

Solid Waste

New and innovative cleaner technologies for the prevention of solid waste.
Valorisation of by-products from leather manufacturing by e.g. biotechnology.
Thermal treatment of leather waste and sludge.

Air Pollution

Reduction of VOC emissions from finishing operations.
Reduction of odour emissions from tanneries and treatment plants.

Other

Integrated approaches to an environmentally sustainable leather production.
Tools to assess and compare the environmental impact from different processes during leather production.
Improved energy efficiency in tanneries.
Quality of product towards consumer related interests
Traceability of hides