

# TANNET NEWSLETTER 5

## **TANNET – A Concerted Action for the European Leather Industry**

*April 2001*

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### **INFORMATION ABOUT THE NEW 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 240 members.

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

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

Already at this stage, the TANNET-network has initiated about 10 proposals to the EU Programmes. Most of the proposals are at the moment being evaluated by the European Commission.

As part of the work-programme, there will be organised four brokerage events/workshops in 2001. These events will primarily take place in Italy, Greece, Portugal and United Kingdom. The output of the workshops will be the creation of several new project consortiums.

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## EU R&D PROGRAMMES

The 5<sup>th</sup> Framework Programme will soon be finished and some programmes or key actions have already been closed for new proposals. There are however, still several possibilities to submit proposals relevant for the leather industry. For a more detailed description about the EU R&D Programmes see the homepage:

<http://www.cordis.lu>

Below follows a description of some relevant programmes for the leather industry.

- Energy, Environment and Sustainable Development Programme  
- Growth Programme

### Energy, Environment and Sustainable Development Programme

There is still one call for proposals this year. The call has a deadline for proposals on the 15 October 2001, and is open for proposals in the area “wastewater treatment and re-use” (water key action).

Some examples of topics relevant for the leather industry that could be included in the work programme are:

- Development of closed-loop technologies (re-use and re-cycling) and of best management practises for the minimisation of pollution and for minimisation of the use of high-quality water in industry, in connection to the implementation of the IPPC Directive.
- Strategies, technologies and sustainable management practises for reducing sludge quantities and for improving their quality in view of their safe and publicly acceptable use through the identification of pollutants` sources and their interception.

### Growth Programme

Key Action 1 (“Innovative Products, Processes and Organisation”) in the Growth programme has its last periodic call this year. It will remain open until May 15, 2001. Key Action 1 (“Innovative Products, Processes and Organisation”) consists of 4 research areas including Eco-efficient processes and design. The key action has introduced Targeted Research Actions (TRAs) in order to concentrate on a few research priorities (Products, Machines, Extended enterprise, Modern Factory and Infrastructure).

The final call will be open to all five TRAs for RTD projects, thematic networks and concerted actions.

In addition to normal projects, large projects are encouraged, aimed at reducing the risk associated to the application of innovative technologies and encompassing, where appropriate, development, benchmarking and validation of technologies. A large SME participation, either through participation in the performance of the research or through participation in user groups is encouraged.

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## **TANNET Workshop in Bologna - 11 May 2001**

The Italian TANNET workshop will be held on the 11<sup>th</sup> May 2001, from 10.00 to 17.00 hours in Bologna Fair, pav.36, 1<sup>st</sup> floor (Lineapelle Fair).

The TANNET workshop will be held within the “First International workshop about the most recent innovations on chemical and mechanical products for tanneries” organised by UNIC. It will allow key actors to exhibit their more recent items, developed to optimise processes, improve finished product performances and reduce environmental impacts.

The presence of a significant number of tanneries and technology suppliers will facilitate discussions about new research topics. Some topics will be illustrated within the TANNET stands and briefly presented within the simultaneous conference sessions.

Within the TANNET stands it will be possible to collect the expressions of interest by tanneries, as the first step towards preparation of project proposals to the EU Research & Development Programmes. Some examples of topics which will be proposed for new research are: cold plasma treatment of leather for specific features, new enzymatic technologies for beamhouse operations, marking systems for traceability from abattoir to finished leather, tanning processes for highly water resistant and durable technical leather.

Furthermore, the following topics will be presented:

- TANNET initiative
- Results from past research (e.g. quality manual for chrome-free waterproof leathers, new Eco-friendly fatliquors for wooled leathers, new Eco-friendly linkers for finishing)
- Ongoing research projects

For more information and registration, please contact:

Ing. Andrea Zucchini  
Unione Nazionale Industria Conciaria,  
Via Brisa 3, I-20123 Milan, Italy  
Tel: +39 02 8807711  
Fax: +39 02 72000072  
E-mail: [az@unic.it](mailto:az@unic.it)

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## **TANNET Workshop in Athens - 24 May 2001**

The Greek workshop will be held at the Royal Olympic Hotel in Athens at 17:30 hours on the 24<sup>th</sup> May 2001. The subject of the workshop is “Technical alternatives for improving environmental performance of the tanning industry”. During the workshop, Dr Rydin will illustrate the TANNET initiatives and Mr. Gonzalez-Quijano will present opportunities for the tanning industry to participate in EU Research activities and ways to improve product and

process quality/environmental performance. Furthermore, UNIC (Italy) and ELKEDE (Greece) will present results of past and on-going projects.

For more information contact:

Maria Barla  
ELKEDE Technology and Design Centre  
12 km Athens-Lamia National Road  
14452 Metamorfosi, Greece  
Tel: +30-1-2855580  
Fax +30-1-2846 471  
Email: [mbar@elkede.gr](mailto:mbar@elkede.gr)

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### **TANNET Workshops in November 2001**

Two TANNET workshops will be carried out in November 2001. The workshops will take place at the following dates:

1 November 2001     Northampton, UK

16 November 2001    Porto, Portugal

More information about the workshops will be included in the next newsletter

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### **Sixth Framework Programme**

The 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.

This is clearly a first step, which will be followed up by substantial discussion and negotiation. However, at this stage the proposal for the next programme highlights seven key emerging technologies and research areas:

- Genomics and biotechnology for health
- Information Society technologies
- Nanotechnologies, intelligent materials, new production methods
- Food safety and health risks
- Sustainable developments and global change

- Citizens and governance in European society

In addition, a specific part of the budget is proposed for research to help improve the design of public policies at a European level by anticipating the scientific and technological needs of the Union. Special measures are also proposed for SMEs, innovation, mobility of researchers and the networking of national initiatives.

More information including the complete proposal for the new framework programme can be found on:

<http://europa.eu.int/comm/research/area.html>

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### **Timetable for the next 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 is given below:

#### Calendar:

21.02.2001	Commission decides on first proposal for Framework programme
March 2001	Informal presentation to the Ministers of Research and Education
May 2001	Adoption by the Commission of proposals regarding the specific programmes
26 June 2001	Council discusses proposal
July/September 2001	First reading by the Parliament
Oct or Dec 2001	Common position of the Research Council
mid 2002	Council and Parliament should adopt final text including budget
End 2002	Council to decide on specific instruments for implementation
Beginning 2003	Start of programme, launch of calls for proposals

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### **Examples of Interesting Projects**

Examples of relevant and promising European projects in the environmental area are given below:

- Water-free retanning, dyeing and fatliquoring of leather: an innovative eco-friendly automated process to increase European tanneries competitiveness

- Tan-Sludge Project  
- Reciclar Project

**- WATER-FREE RETANNING, DYEING AND FATLIQUORING OF LEATHER: AN INNOVATIVE ECO-FRIENDLY AUTOMATED PROCESS TO INCREASE EUROPEAN TANNERIES COMPETITIVENESS**

**CRAFT 1999 70371**

**Objectives**

The objective of this research project is the design and realisation of an experimental system for dyeing and fatliquoring the hides continuously. The research started in January 2001. A successful outcome would lead to the following main results:

- the possibility of processing small quantities of hides profitably, thanks to greater production flexibility of the envisaged new technology (quantitative flexibility)
- increase in the number of colours and products offered to customers (qualitative flexibility)
- more than 50% reduction of the duration of retanning, dyeing and fatliquoring operations
- 25-30% reduction of the water consumption in the tannery, due to the elimination of water from the retanning, dyeing and fat liquoring processes,
- reduction by 3-5% of the energy consumption,
- reduction by 15-20% of the consumption of chemical products for retanning, dyeing and fatliquoring
- reduction in waste-water treatment costs equal to about 0.5% of turnover
- possibility of continuous monitoring and active control of the chemical-physical parameters that affect the stages of retanning, dyeing and fatliquoring.

**Work Description**

The fundamental change consists of a new system for the fast chemical stabilisation of retanning agents, dyes and fats/oils, which ensures the completion of their chemical reaction with the protein fibre of the dermal layer of the hides. This occurs in a chamber where it is possible to continuously control and alter the environmental variables of pH, temperature, timing and humidity. These factors set off and facilitate the completion of the chemical reactions, including those between the sulphuric and/or hydroxides (the active portions of the dyes and fats) and the amino acids (the active portion of the hide's protein fibres). In addition, the proposed mechanism "develops" the chemical products formed, in that it aligns the molecules of the dye and fat absorbed, resulting in improved colour, brightness, feel and softness.

This system is coupled with a new machine for the penetration of chemicals, able to lay down an exactly predetermined amount of them and to control the degree of crossing, according to the productive requirements of the tanneries. Finally, the other important innovation is the complete automation of the process of retanning, dyeing and fatliquoring.

### **Contact person**

Ing.			Andrea			Zucchini
Unione		Nazionale		Industria		Conciaria,
Via	Brisa	3,	I-20123	Milan,		Italy
Tel:	+39		02			8807711
Fax:	+39		02			72000072
E-mail:	<a href="mailto:az@unic.it">az@unic.it</a>					

### **- TAN-SLUDGE PROJECT**

#### **Objectives**

The actual treatment in the Alcanena WWTP (Portugal) involves the production (in the thickener) of a suspension with a low solids content (6 g/l), that is filtered producing a sludge with more than 60% of humidity.

It is, in this project, intended to study the concentration of the thickened sludge, the leaching of chromium contained in the sludge, the filtration stage in order to produce sludge with no more than 15% of humidity and the recovery of chromium from the leaching solutions.

The leaching stage will involve a selective acid leaching of chromium. This task of the project involves the study and optimisation of the relevant leaching variables. The objective is the production in more than two leaching stages of sludge with chromium content smaller than the maximum allowed by the EC regulations. After leaching, it is intended to do the filtration of the suspension in a specially designed diaphragm plate filter press, with washing and drying of the cake. This technology will be studied in detail in order to achieve the production of sludge with no more than 15% of water. The final destination of this dry sludge (landfill, agriculture, construction material etc) will be studied. Finally, the removal of chromium from the leaching solutions by precipitation as  $\text{Cr}(\text{OH})_3$  will be studied, and the necessity of using biosorption or ionic exchange to recover the residual chromium will be analysed. At the end of the project, an economic study of the integrated process will be carried out.

#### **Work Programme**

The research will focus on the study of different types of sludge originating in each of the participant's region/country. The project will preliminary be developed according to the following tasks:

- Task 1 Literature review
- Task 2 Characterisation of the different thickened sludge, raw effluent and treated effluent (physical-chemical and bacteriological analysis)
- Task 3 Study of the operating conditions of a chemical leaching process

- Task 4 Filtration studies
- Task 5 Technical-Economical study of the potential sludge applications vs. Landfill disposal
- Task 6 Chromium recovery on filtered and settled waste waters
- Task 7 Viability study of chromium re-use in the chrome tanning process
- Task 8 Final data processing

#### **Contact person**

Rui					Sampainho
CTIC	(Centro	Tecnológico	das	Indústrias	do Cuoro)
Apartado					158
Sao					Pedro
2384-909			Alcanena,		Portugal
Tel:+351-891316					
Fax:					+351-249-881390
e-mail: <a href="mailto:email@ctic.pt">email@ctic.pt</a>					

#### **- RECICLAR PROJECT**

#### **Objectives**

Portugal is the biggest world-wide producer of cork. The cork used in wine bottles must undergo a “boiling” treatment in hot water before any other manufacturing procedures. This operation is done in order to extract some of the compounds that have a higher probability of originating organoleptic changes in the wines where the cork will be used. The operation is a batch process that consists of submersing cork in a boiling water bath for 60 to 90 minutes. This water is used for several “boilings” before it is rejected as effluent. This is a severe environmental problem for the cork, since this effluent has a phenolic/poly-phenolic concentration between 500 and 1000 mg/l. However, the leather industry uses these types of compounds (as vegetable extracts) in leather processing.

The aim of the project is to study the feasibility of applying techniques to concentrate the boiling liquors in order to get a suitable concentration and properties that will enable the use of these liquors in the tanning and re-tanning processes of the leather manufacturing.

#### **Contact person**

Rui					Sampainho
CTIC	(Centro	Tecnológico	das	Indústrias	do Cuoro)
Apartado					158
Sao					Pedro
2384-909			Alcanena,		Portugal
Tel:+351-891316					
Fax:					+351-249-881390
e-mail: <a href="mailto:email@ctic.pt">email@ctic.pt</a>					



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## **BREF-document for Tanneries finalised**

The European Commission adopted on September 24, 1996 (Directive) 6/61/EC; OJ L October 10, 1996) the IPPC-Directive. IPPC stands for Integrated Pollution Prevention & Control. Its purpose is to introduce at EU level an “integrated” approach (i.e., simultaneously addressing all three environmental media- air, water and soil) to industrial emission control, coupled with a common permitting regime. The IPPC Directive introduces the so-called combined approach to emissions control permitting, which sets Emission Limit Values (ELVs) based on Best Available Techniques (BAT), while also taking into consideration the geographical position of each installation concerned as well as the local environmental conditions. In order to support the permit writing work of the member states, the Commission has established a program to write approximately 30 sector-specific “BAT reference documents (BREFs). The BREFs will provide information in order to assist Member States in their task of setting emission limit values.

The final draft of BREF for tanneries was approved by the IEF (Information Exchanger Forum) in the beginning of May 2001. For more information about the IPPC-Directive including the final text for the BREF-document for tanneries, please consult:

[http://europa.eu.int/comm/enterprise/environment/index\\_home/ippc/ippc\\_112.htm](http://europa.eu.int/comm/enterprise/environment/index_home/ippc/ippc_112.htm)

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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 250 members and many tanneries and other stakeholders have showed an enormous interest for the initiative.

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## **LIST OF RESEARCH PRIORITIES**

The list of research priorities for the European leather Industry has been updated since the last newsletter. The new and revised list 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 in the leather industry.

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 evaluate the impacts on relocating tanneries from city centres to industrial parks.

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

The SME Specific Measures has been described in previous newsletters. The SME Specific Measures consist of exploratory awards and Co-operative Research Projects. There are no more calls for exploratory awards in the 5<sup>th</sup> Framework Programme.

The Co-operative Research Projects will enable transnational groups of SMEs with a common problem but with limited or no in-house RTD capability, to sub-contract the research they need to a specialist (called an “RTD performer”). The Commission supports up to half the cost and while the RTD performer is paid in full for its work the results belong to the SMEs alone.

You can participate in the SME Specific Measure if you are an SME which:

- Has less than 250 employees
- Has either an annual turnover not exceeding EURO 40 million or an annual balance-sheet totally not exceeding EURO 27 million
- Conforms to the criteria of independence

And in addition:

Is not a research centre, research institute, contract research organisation or consultant.

Proposals can be submitted at any time. They will be evaluated by batch at regular intervals. An indicative timetable of cut-off values for submission is given below.

Cut-off date	Expl. award	Coop.Res.
19 Sep. 2001	No	Yes
16 Jan. 2002	No	Yes
17 Apr. 2002	No	Yes

For more information see <http://www.cordis.lu/sme>