

ACRONYM		TANNOSE	
TITLE MEASUREMENT AND DIAGNOSIS OF ODOURS IN TANNING PROCESS: AN INNOVATIVE MEASUREMENT SYSTEM AND METHODOLOGY TO IMPROVE THE ENVIRONMENTAL SUSTAINABILITY, THE PRODUCT QUALITY AND THE COMPETITIVENESS OF THE EUROPEAN TANNERIES.			
Project Nº: R+D Program / Type:		CRAFT-1999-70750 CRAFT	
Starting Date: 01/01/2002		Final Date: 31/12/2003	Duration: 24 MONTHS
Prime Proposer: INCAS		Coordinator: INCAS	
RTD's Performers: Universitat de Torvergata AIICA Conciaricerca Italia ELKEDE		Other Partners: Veneta Conciaria Valleagno Industria Conciaria Nobel Acque del Chiampo Derma O.E.K. Gelis and Sons Rollex S.A. Kotoglidi Agg. Panagiota Fontanellas y Martí Curdesa	
OBJECTIVES: The objective of the project is to realise a system to monitor and diagnose odours in the tanning cycle in situ and in real-time. To objectively and promptly measure the quality, quantity and change in smell, identify the origin, diagnose the cause and to intervene to reduce and adequately manage the aspect that gave rise to the problem, to achieve the objectives outlined below: <ul style="list-style-type: none"> ✓ Improved control and reduction of bad smelling emissions from tanneries and consortium wastewater treatment plants ✓ Decreased levels of conflict and enhanced environmental image and credibility of the sector in relation to Public Administrations and communities located near ✓ Possibility of establishing responsibilities on an objective basis with regard to possible bad smelling emissions ✓ Decrease in the production and environmental costs by some 10%, thanks to the immediate correction of process non-conformities ✓ Testing and monitoring the preservation state of raw hides, according to their measured odour, will allow to: <ul style="list-style-type: none"> -Verify product conformity with the quality requested -Optimise preservation times and subsequent treatment, with a decrease of defects in the finished product of at least 30% -To establish in advance the most suitable type of treatment depending on the quality of the hides, achieving a significant saving of chemical products (up to 10%) and with a decrease in the rejects to be disposed of (up to 30%) ✓ Monitoring the efficiency of tannery wastewater treatment processes will make it possible to identify the occurrence of abnormal situations in advance, thereby making it possible: <ul style="list-style-type: none"> -To improve the overall environmental impact on water -To reduce the overall operating costs of treatment plants ✓ Finally, the special structure of the partnership will make it possible: <ul style="list-style-type: none"> -To increase co-operation between the world of research and industry -To increase co-operation among tanneries and district consortium structures involved in wastewater treatment 			



DESCRIPTION of the WORK:

Three dedicated prototypes will be designed for continuous on-site functioning. Basically, the system will be formed by the following sub-systems:

- ✓ Sensor chamber, sensor electronics, measurement and communication
- ✓ Sensors
- ✓ Sampling
- ✓ "Core" software for instrument control and data acquisition
- ✓ Software for data analysis and user interface

System will be dedicated to the following applications:

- ✓ Monitoring and diagnosis of odours in the tanning industry, to prevent olfactory nuisance
- ✓ Measuring and assessing raw hides preservation state and quality
- ✓ Monitoring the efficiency of tannery wastewater treatment processes

In order to develop the three applications dedicated systems, the research will be carried out in three main phases:

- ✓ Phase 1 (tasks 1 and 2): The requirements of each application will be defined and the optimal sensors (molecules and sensor arrays) will be obtained and tested. There are three types of basic requirements for the design and realisation of the prototypes: chemical characterisation of odours, chemical-physical characterisation of each application and environmental requirements
- ✓ Phase 2 (tasks 3 and 4): To realise and test in laboratory the three dedicated prototype instruments
- ✓ Phase 3 (tasks 5, 6, 7 and 8): Tests and calibrations in-field and finally to validate the instrument

