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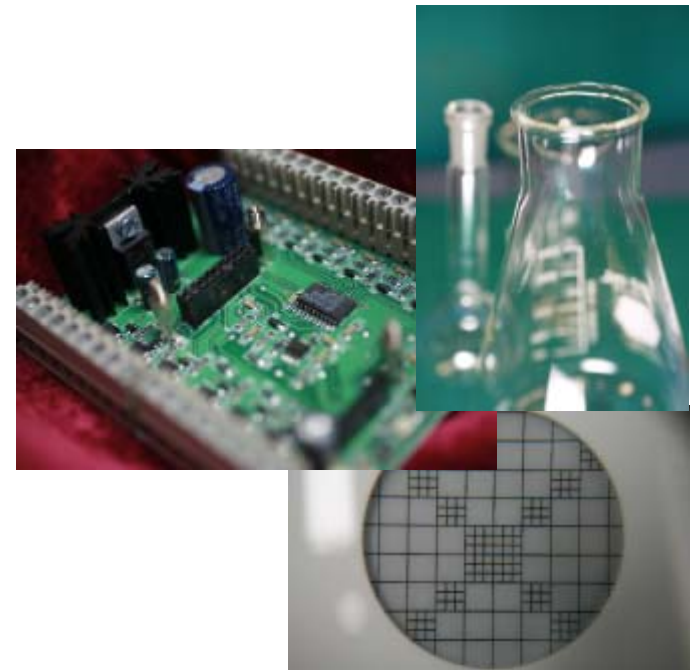
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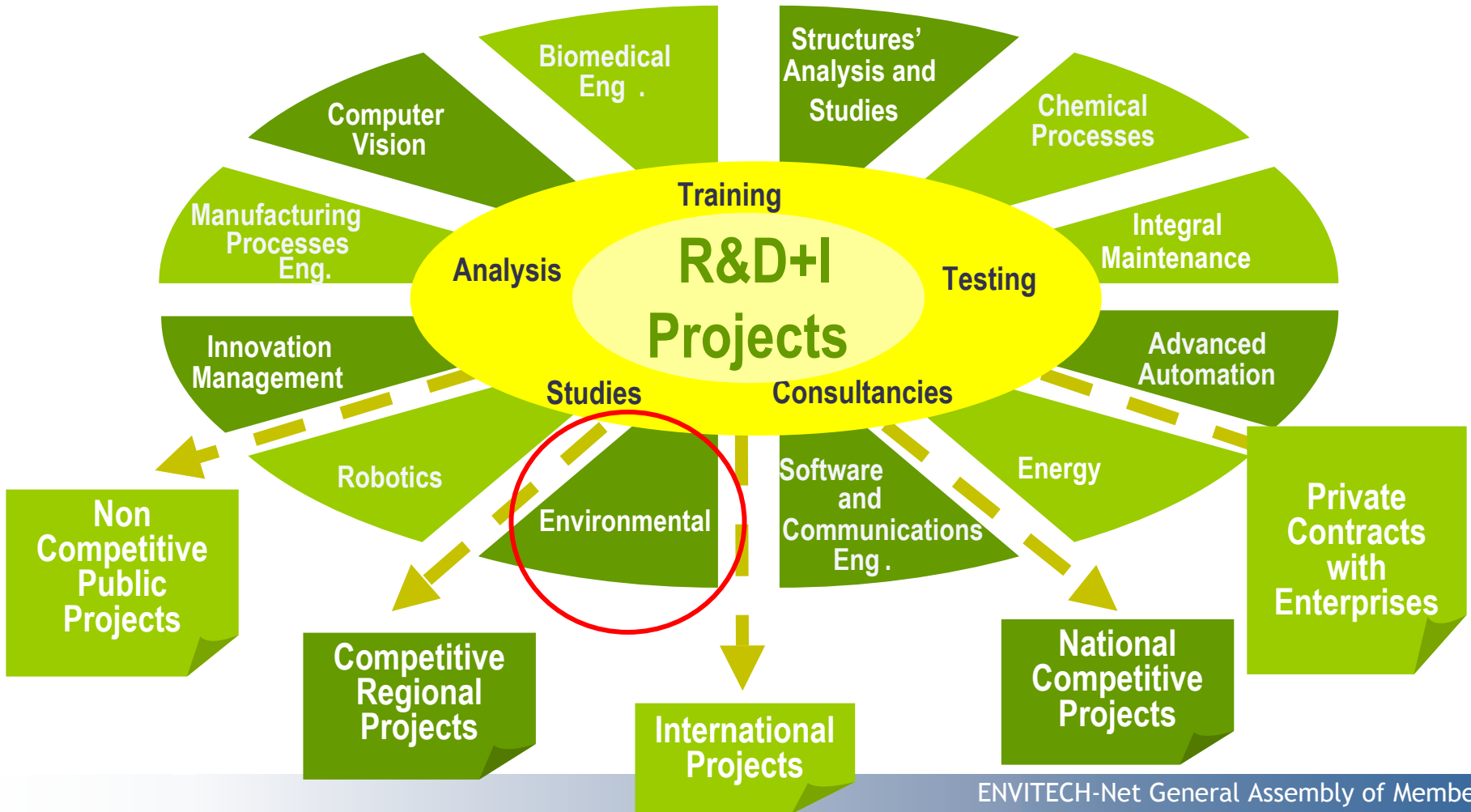


MISSION

- Identify technology needs to develop **RTD**-based knowledge
- Support technological innovation among **SMEs** and micro-SMEs
- **Disseminate** RTD and innovation results

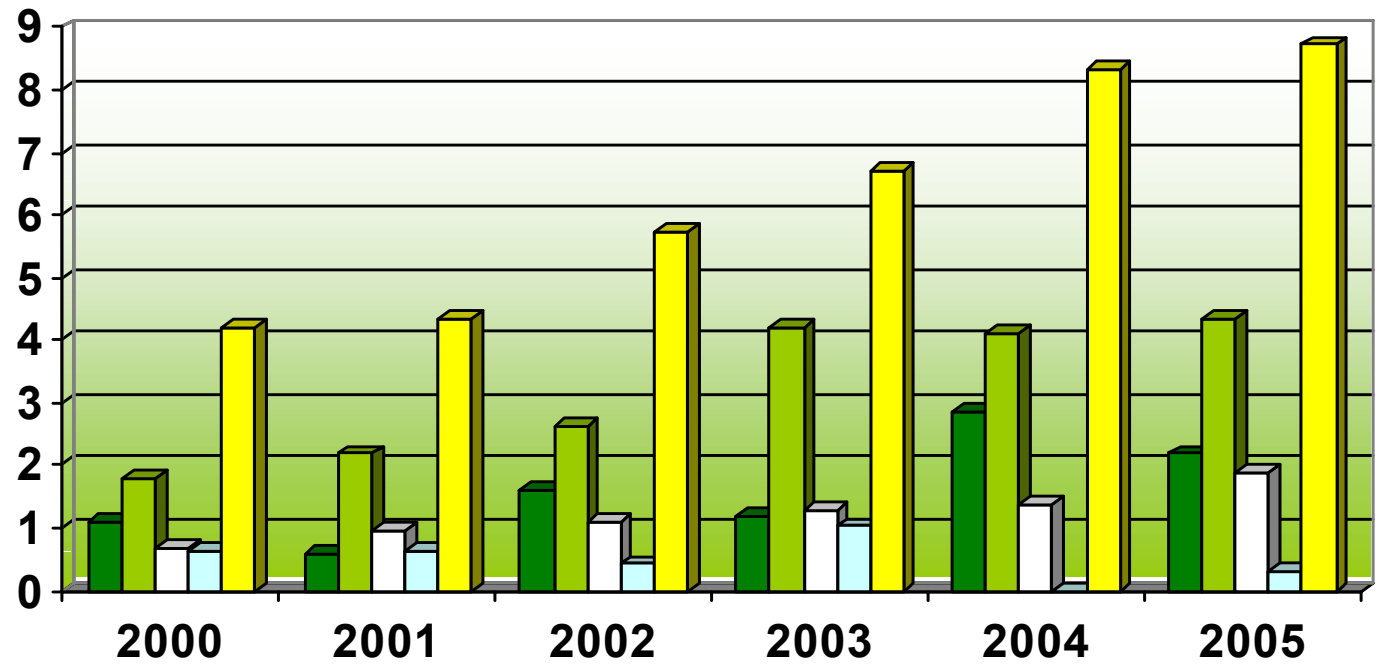


FIELDS OF RESEARCH



CARTIF IN FIGURES

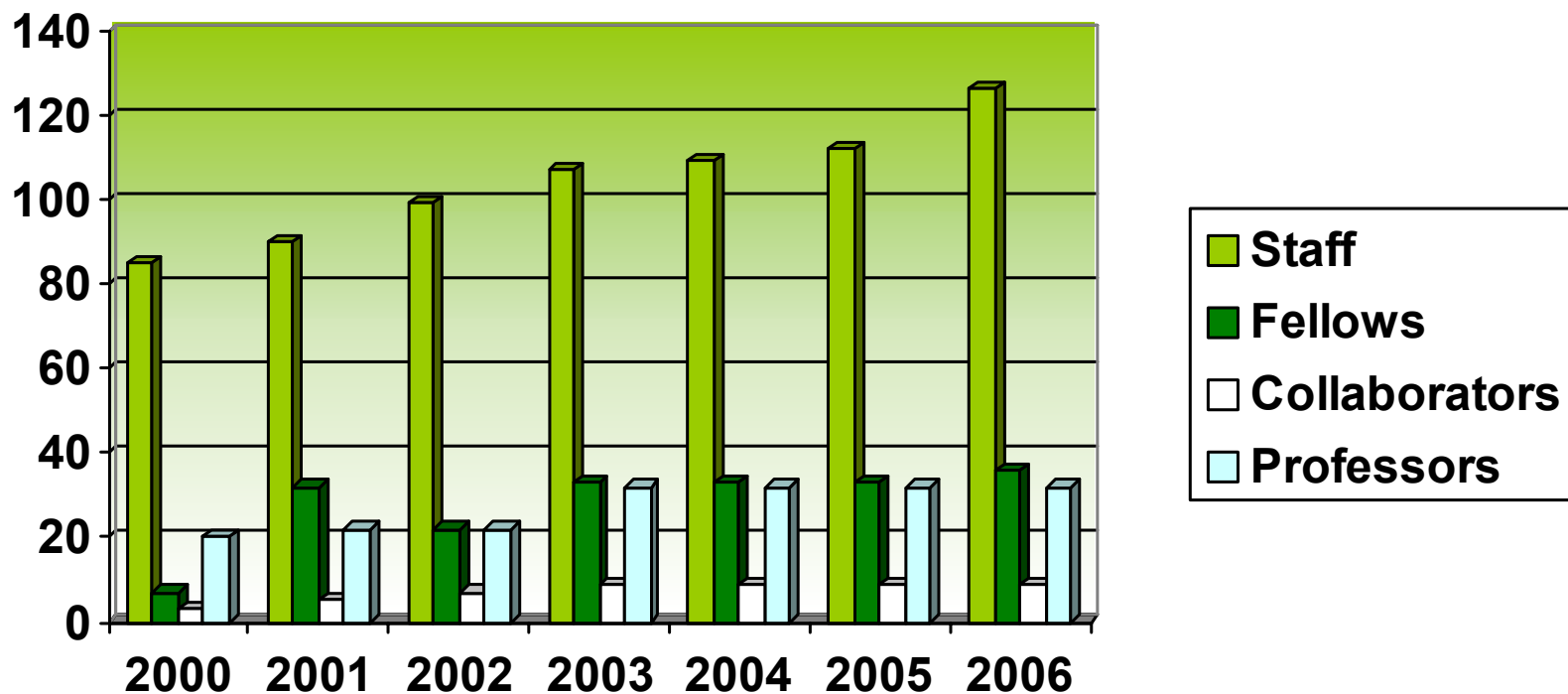
Total income (M€)



Competitive public
 Companies
 Not competitive public
 Other
 Total

CARTIF IN FIGURES

Human resources

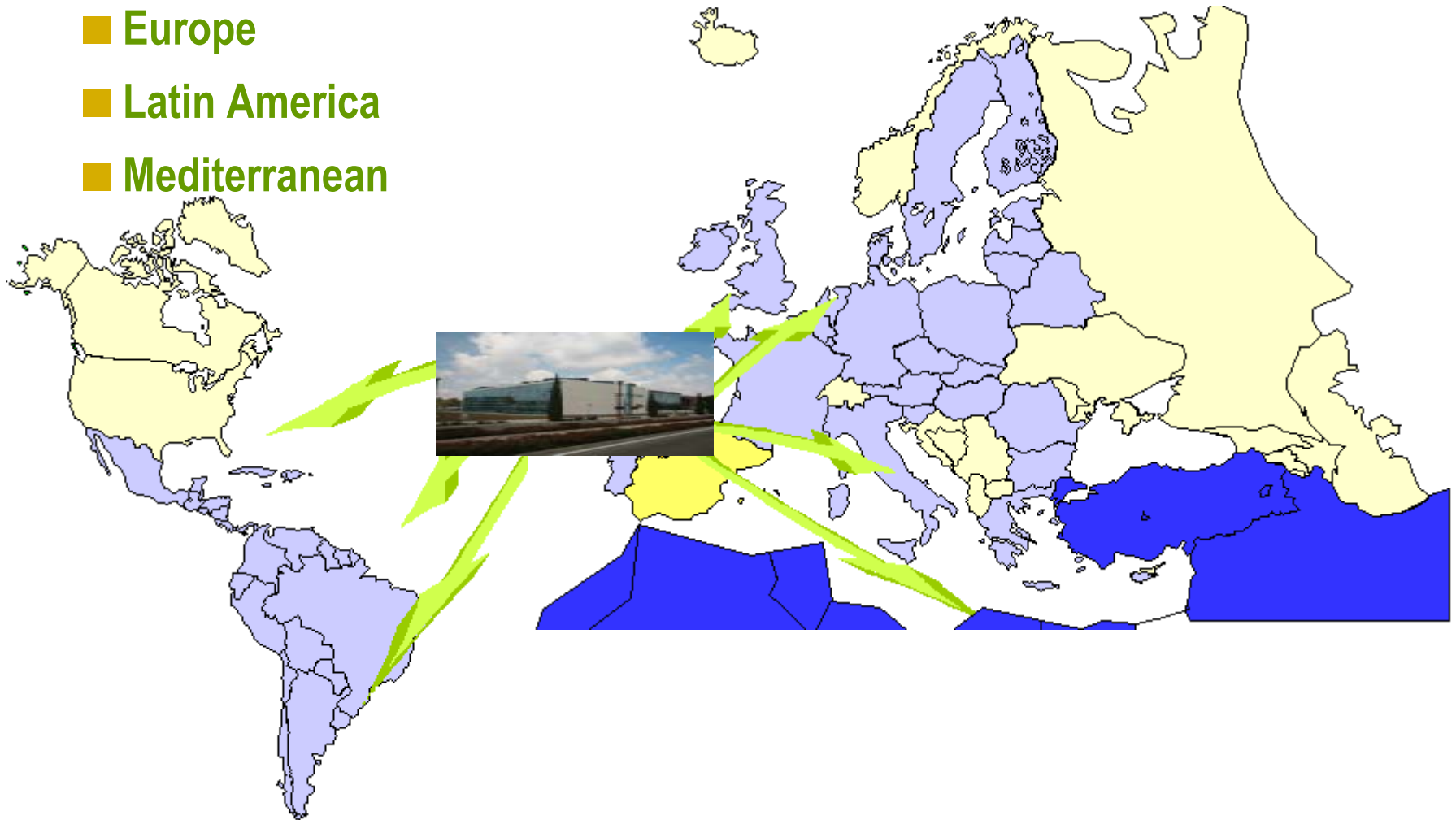


International dimension



International Dimension

- Europe
- Latin America
- Mediterranean



CARTIF participates now in 21 international projects

- VI Framework Programme (11)



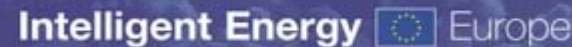
- LIFE (1)



- Interreg III A, Interreg III C (3)



- Intelligent Energy (2)



- MEDA (1)



- CYTED (2)



- COST (1)



Projects submitted in 2007 to FP7 by CARTIF Environmental Division

- **VESSEL- Advanced Telemetry and Decision Support Systems for Efficient Sea Transportation - Call FP7-SST-2007-1 (STREP)**
- **BLUMET- Integrated Strategies for Industrial Wastewater Reuse - Call FP7-ENV-2007-1 (Collaborative Project)**
- **EcoNewa- Cost-Effective, Environmentally Safe Waste Management Treatment Technologies and Services in Nepal - Call FP7-SST-2007-1 (Coordination Action)**
- **KOTIM - Knowledge based technologies for industrial and municipal waste management - Call FP7-REGPOT-2007 (Network)**

CARTIF participates in the following international networks:

- **AER: Assembly of European Regions**
- **CYTED: Ciencia y Tecnología para el Desarrollo**
- **EUBIA: European Biomass Industry Association. (Board member)**
- **TII: Technology Innovation Information. (Board member)**
- **SETAC: Society of Environmental Toxicology and Chemistry**
- **MESAEP: Mediterranean Scientific Association of Environmental Protection**
- **EARTO: European Association of Research and Technology Organisations**
- **ISES: International Solar Energy Society**
- **IWA: International Water Association**
- **ENVITECH: International Scientific Thematic Network for Environmental Technology**

CARTIF participates in the following international European Platforms:

- **WSSTP: Water Supply and Sanitation Technology Platform**
- **SUSCHEM: European Technology Platform for Sustainable Chemistry**
- **ISETP: Industrial Safety European Technology Platform**
- **ECTP: European Construction Technology Platform**
- **FFL: European Technology Platform "Food for Life"**
- **HFP: Hydrogen and Fuel Cell Technology Platform**
- **Plant ETP: European Technology Platform "Plants for the Future"**
- **NESSI: Networked European Services and Software Initiative Technology Platform**
- **ARTEMIS: European Technology Platform on Embedded Systems**
- **eMobility: Mobile and Wireless Communications Technology Platform**
- **EPoSS: European Technology Platform on Smart Systems Integration**
- **FTP: Forest Based Sector Technology Platform**
- **MANUFUTURE: Future Manufacturing Technologies Platform**

CARTIF participates in the following Spanish Platforms:

- WSSTP: Water Supply and Sanitation Technology Platform
- **SUSCHEM: European Technology Platform for Sustainable Chemistry (PETEQUUS)**
- **ISETP: Industrial Safety European Technology Platform (PTESI)**
- **ECTP: European Construction Technology Platform (PTEC)**
- FFL: European Technology Platform "Food for Life"
- **HFP: Hydrogen and Fuel Cell Technology Platform (PTEHPC)**
- Plant ETP: European Technology Platform "Plants for the Future"
- **NESSI: Networked European Services and Software Initiative Technology Platform (INES)**
- **ARTEMIS: European Technology Platform on Embedded Systems (PROMETEO)**
- eMobility: Mobile and Wireless Communications Technology Platform
- EPoSS: European Technology Platform on Smart Systems Integration
- **FTP: Forest Based Sector Technology Platform (PTEF)**
- MANUFUTURE: Future Manufacturing Technologies Platform

Activities in the field of Environment



Environmental Technology Area

- Pollutant emissions, sewage and solid waste treatment
- Pollution minimization and engine optimization
- Advanced treatment of effluents and pollutants emissions
 - Membrane process
 - Advanced Oxidation Process (AOP's)
 - Photocatalysis in liquid & gaseous phases
- Waste and Sub-products valorization
 - Chemical recycling of plastic
 - Natural stone utilization
 - Development of advanced composites

Sustainable Management Area

- Eco-design
- Life Cycle Assessment (LCA)
- Environmental Risks Assessment (ERA)

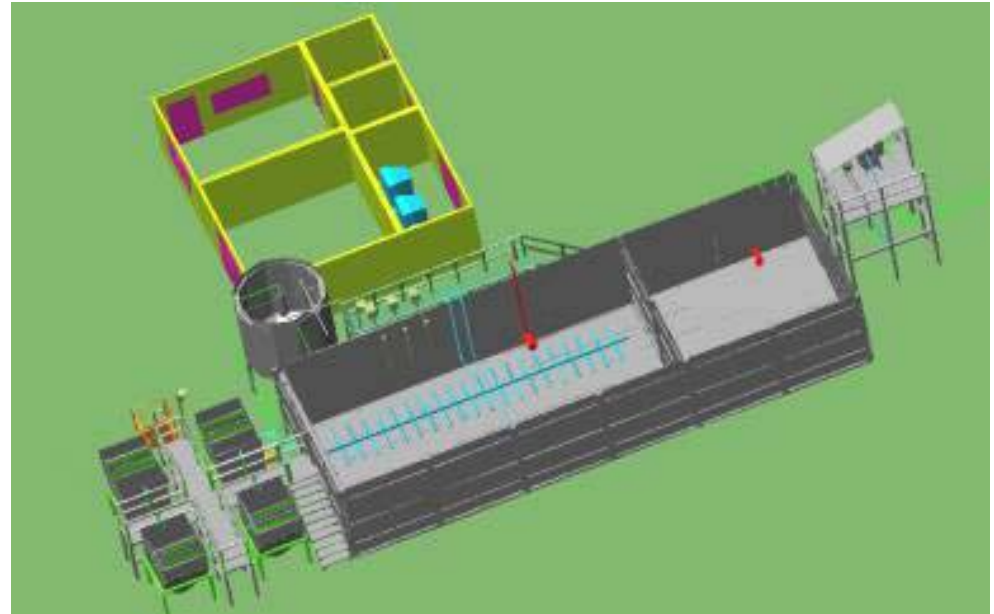


Environmental Technologies Area

- Pollutant emissions, sewage and solid waste treatment**
- Pollution minimization and engine optimization**

Water Integral Management: Design of modular plants

- 2.000 population equivalent
- Anoxic – aerobic
- Nitrogen removal
- Reduced sludge production
- Fast and easy to install
- Easily expandable
- High degree of automation
- Lower maintenance and operational requirements



Piggery Waste Denitrification

Objectives:

- Transformation of a highly problematic waste because of its composition, quantity and location in preponderantly reusable products through their application to soil in a more rational and environment friendly way.

Results:

- High ammonia removal efficiency of the air stripping method (80%).



Effluents Degradation in Anaerobic Bio-Reactors

Objectives:

- Study on the removal of organic matter in anaerobic bio-reactors by using organic waste feeding

Results:

- The obtained effluent presents better conditions for its applicability in the soil than the original piggery.



New eco-efficient process to remove the tar pitch from wool - CRAFT

Objectives:

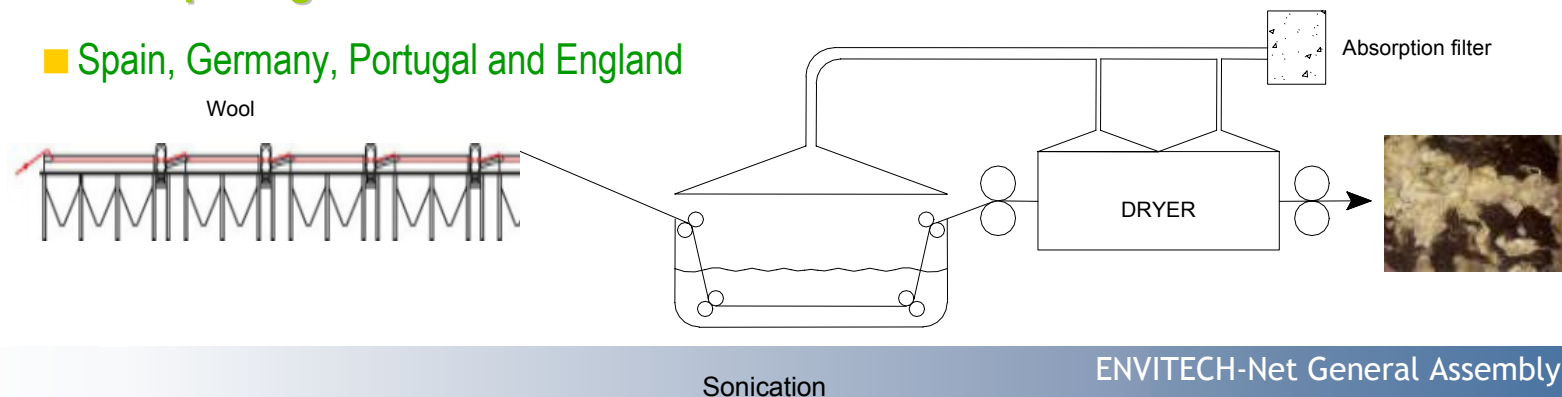
- To replace the detergents and chlorinated solvents used to wash off wool with other less dangerous products for human beings and more environmental friendly.

Advantages:

- Reduction the spilt of detergents to the rivers and atmospheric emissions of organic compounds, which will produce an environmental improvement and safety at work.

Participating countries:

- Spain, Germany, Portugal and England



Development Tools and Guidelines for the Promotion of the Sustainable Urban Wastewater Treatment and Re-use -MEDA

Objectives:

- The development of specifications for the urban wastewater treatment and agricultural reuse
- The development of the appropriate tools for the safety and effective control and monitoring of the operation of the wastewater treatment plants
- The development of a multi-criteria analysis user friendly software

Results:

- <http://www.uest.gr/medaware/>
- <http://medaware.cartif.com.es>

Participating countries:

- Cyprus, Greece, Jordan, Lebanon, Morocco, Palestinian Authority, Turkey and Spain



Health surveillance system in urban areas near incinerators and industrial premises

Objectives:

- Development of guidelines for the implementation of an environmentally / sanitary surveillance system that could help in ascertaining the sort of long-term health effects of monitored pollutants
- These guidelines will be defined on the basis of pilot project that will have been previously carried out on the territories of three different partners: Italy, Hungary and Poland

Result:

- Development of the guidelines previously mentioned
- Risk analysis

Participating countries:

- Spain, Poland, Italy, Greece, Austria, Hungary

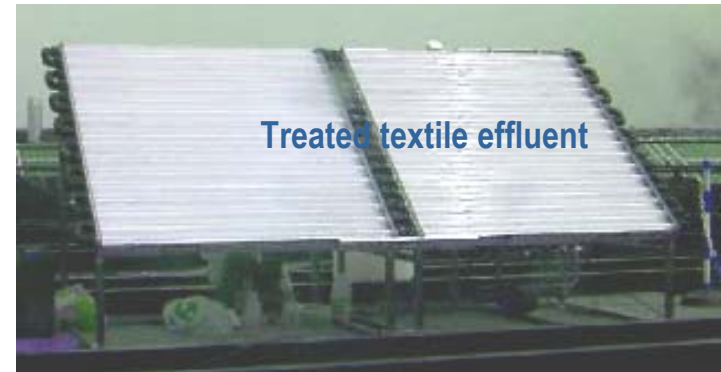


Environmental Technologies Area

- **Advanced treatment of effluents and pollutants emissions**

Advanced Oxidation Processes (AOP) in aqueous phase

- Study of the phenol photodegradation
 - Identification of intermediates of reaction
 - Mechanism of the reaction
- Study of textiles effluent photodegradation
 - Optimal operation conditions
 - Influence of pollutant type
- Study of the PCBs photodegradation
- Methodology – Scale up of the process
- Economic evaluation – Industrial applications



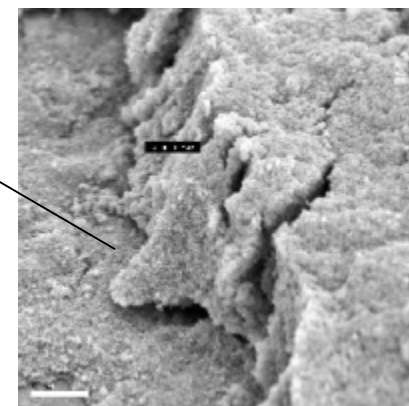
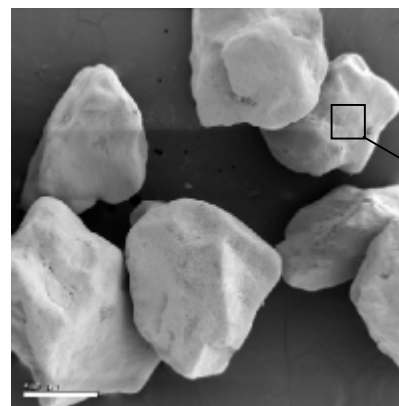
Advanced Oxidation Processes (AOP) in gas phase

Photocatalytic degradation of micro-pollutants in gas phase using fluidized bed technology

- Study of the trichloroethylene and toluene degradation

Development of new self-cleaning and disinfectant materials

- Evaluation of methods for developing thin films:
 - Chemical Vapor Deposition (CVD)
 - Sol-gel methods



Wastewater treatment by means of membrane technology



Anaerobic Membrane Bioreactors (AnMBR)



Aerobic membrane bioreactors (MBR)

Environmental Technologies Area

- Waste and Sub-products valorization

Chemical Recycling of Plastics

- Design and construction of a pilot plant for post-consumer PET and PU waste chemical recycling
 - ✓ Verification Tests and set-up of the reactor and the separation techniques.
 - ✓ Set-up of the analytical techniques: DSC, FTIR, GPC, LC-MS.
 - ✓ Monomer recovery (BHET) of 85%.
- Design and construction of a pilot plant (fluidized bed reactor) for polyolefins cracking



Manufacturing of artificial stone using stone waste from a limestone exploitation

Objective:

- To design and develop the manufacture process of artificial stone materials from limestone sludge

Characteristics:

- Product based in wastes with the same properties and aesthetic aspect as natural stone articles



Valorization study of the rubber from end-of-life tyres for their application as crash barriers

- Identification of the organic formulation needed to obtain a material from rubber and polypropylene pellets in such a way that it can be molded by injection, and development of the industrialization process to be implanted.

Characteristics:

- Development of a new product from end of life tires and plastic wastes for its application as guardrails covers.



Sustainable Management Area

- Eco-design**
- Life Cycle Assessment**
- Environmental Risk Assessment**

Strategies of packaging and packaging waste management

- Evaluation of the Environmental Impacts associated with Household and Sanitary Packaging and Packaging Wastes through Life Cycle Assessment.

Eco-design of street lighting Systems using LCA

- Evaluation of the Environmental Impacts associated with Household and Sanitary Packaging and Packaging Wastes through Life Cycle Assessment.



LCA of Packaging and Packaging Waste Collection in Rural Areas

- Evaluation of the Environmental Impacts associated with Household and Sanitary Packaging and Packaging Wastes through Life Cycle Assessment.

Environmental impact associated with the change of combustible in a thermal power plant using LCA

- Determination of the environmental impact associated with changes in the productive process

Ecodesign in the Metal-Mechanic Sector

- Establishment of a methodology suitable for the environmental and economic development of a product during the design phase (Ecodesign) and adaptation to the Metal-Mechanic Sector.

Development of new materials for the production of Reusable Sanitary Underpads

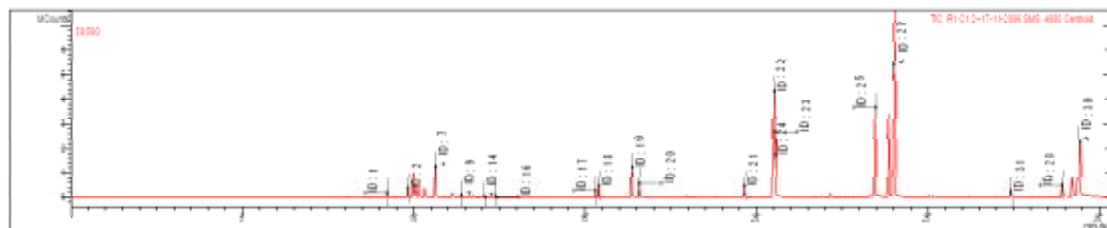
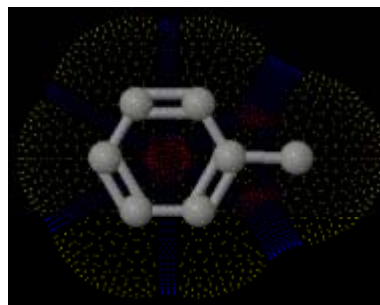
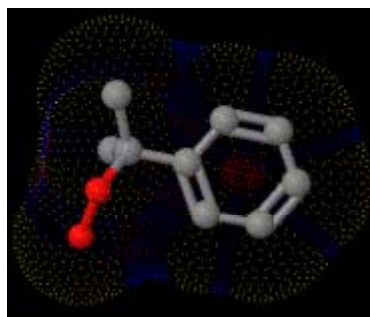
- Characterization study and improvement of the environmental performance of the underpads for incontinence.



ECODESIGN-SMEs Consolidation and Competitiveness Plan

- Introduction of the Ecodesign methodology in the routine tasks of SMEs,

Gas Chromatography Analysis of gas emissions and VOCs released during the resin curing process



Objective:

- Realization of analysis of gas emissions and VOCs released during the resin curing process by gas chromatography. These resins will be used in the manufacture of composites. A Human Health and Environmental Risk Assessment of the identified chemicals was carried out.

Thank you for your attention!!



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