



Assessorato all'Università e Ricerca Scientifica,
Innovazione Tecnologica e Nuova Economia,
Sistemi Informativi e Statistica



INTERNAZIONALIZZAZIONE DEI Centri Regionali di Competenza



CRdC Tecnologie Scrl



CALEIDA
AGENZIA DI COMUNICAZIONI

TECNOLOGY - New Technology Solutions for Production Activities

The Regional Competence Centre – Technology carries out research, development and transfer of innovative technological solutions within strategic areas for SME (Small and Medium Enterprises) within Campania's manufacturing network. The added value of the Centre can be found in the highly innovative quality of its solutions manifested in its products and processes pertaining to: polymers, composites and biomaterials; advanced components, devices and sensors; modelling, planning and testing of industrial applications; industrial engineering; energy systems integration; automation and control of production processes.

The principal outputs

Manufactured Products Obtained from Polymers and Renewable, therefore Eco-Compatible, Resources

Already widely used in footwear to make soles and innersoles, they represent a valid alternative to polyurethanes in terms of cost and performance. Meanwhile within the industry there is a growing interest in the use of other types of materials, as long as they improve performance, processability and compatibility with the other components of the shoe.

This type of structure guarantees a savings on raw materials and/or a dramatic reduction of the final weight of a specific manufactured product, a much sought-after quality in nearly all production sectors and in particular in the footwear, automotive and aeronautic industries.

In addition, the possibility to manage, through the selection of the material and the parameters of the expansion process, specific characteristics of the cellular structure, like, for example, the average size or the degree of interconnection of cells, renders the expansion particularly versatile. The materials utilized are bio-compatible and recyclable.

Polymer-Based Textiles Technology – Perfumed or Odour-Absorbing Microcapsule Fibres for the Textile Industry

The polyelectrolyte gels, which have a particularly hydrophilic structure, constitute a category of materials which possesses a very high water absorption capability and are also known as super-absorbents. The Centre has developed super-absorbent polyelectrolyte hydrogels optimizing their fluid absorption capacity, as well as their mechanical and transport properties. The output success factors can be divided into two performances: odour absorption and textile perfuming. The propensity to invest is certainly consistent among large size enterprises that must defend the importance of their brand. In any case, the most important groups are more autonomous in relation to new technology solutions. A greater propensity to invest may be found among medium-large enterprises which, unable to rely only on their brand name to compete, must guarantee substantial innovations.

Biomaterials in Reconstructive Orthopaedic Surgery and Orthodontics

The development of bioactive materials for the regeneration of osseous tissue has been achieved through the carrying out of concurrent, and in part sequential, work such as the preparation and characterisation of injectable substitutes, the preparation of non-injectable substitutes, the study of controlled drugs release kinetics, and the definition and validation of in vitro biocompatibility determination techniques. The development and optimization of adhesives and pins for use in orthodontics has been achieved through parallel work such as the characterisation and rationalisation of the care process of adhesives, the numeric modelling of the process, the development of materials and techniques for the adhesive material engineering to improve resistance and sealing properties, and the analysis of the biomechanical performance of teeth and related prosthetics through the combination of microtomography and X-rays. For commercial purposes it's worth remembering that owning a patent represents a tangible way of facilitating market success.

Technologies for Integration of Distributed Electrical Energy Production Systems

Technology can supply highly qualified services in training, information, consultancy and technical and organisational support for all subjects tied to electrical energy and relating to: the diffusion and transfer of knowledge of the problems linked to use and integration, within the distribution network, of new technologies for distributed generation and storage (photovoltaic, eolic plants, etc.); making the various scientific competences available and supporting the integrated diffusion of new technologies; the development and transfer of knowledge on economic, social and environmental impact analysis and of governmental regulations and incentives. The field of technological solutions here outlined is only beginning its lifecycle in many countries, and so the expectation is consistent, albeit in an industry which has one of the longest time scales.

New Devices for the Electronics Industry

Businesses can avail directly of the capability to produce materials on demand, both in the oxide and polymer conductor sectors, to shape the properties most desired in electronics, and to develop prototype devices. In the field of the chemico-physical synthesis of new materials, RCC, commissioned by STMicroelectronics, has manufactured prototype devices with extremely promising memory capacity. Among these are samples of the $YBa_2Cu_3O_7$ and $Nd_{1+x}Ba_{2-x}Cu_3O_7$ superconductors, both for sputtering and laser ablation and possessing excellent superconductive, structural and superficial qualities.

The business sectors interested in these developments are the automotive, telecommunications (cell phones, RF devices), industrial electronics (electrical activation, drives, electrical traction, UPS) and testing sectors.

Structure

The Centre avails of the collaboration of a number of departments of the universities of Naples who in the last 6 years have developed valid competences and delivered ambitious output, resulting from important product and process innovations.

Potential Market

The centre is aimed at the technology and innovation markets. This determines a relatively short lifecycle for products/services due to the continuous development of technological innovations on a global scale. The potential target markets have already emerged following the initial projects outlined, in particular in advance materials in textiles, in footwear, in biomaterials, in aeronautics and in electronics. In detail: the development of "intelligent" fibres and fireproof fabrics in the textile sector; instruments for bone repair in orthodontics made from biomaterials; the use of new materials in shoes and bio-functional arch supports in footwear; the development of industrial technologies in the aeronautical sector.

Clients/Commissioning Bodies

SPECTRA TEC, CTT Group, Seconda Università degli Studi di Napoli, Università degli Studi di Salerno, Università degli Studi di Napoli Parthenope, Università degli Studi del Sannio, Istituto Nazionale per la Fisica Nucleare, CNR, Enea, Consorzio Technapoli, Istituto Nazionale Fisica della Materia

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