

*Una manera de hacer Europa*



# BUENAS PRÁCTICAS Actuaciones Cofinanciadas

“APPLICATION OF NEW NANOTECHNOLOGY PRODUCTS TO THE DEVELOPMENT OF SMART FABRICS”  
Regional Ministry of Innovation, Industry, Tourism and Trade

## Programa Operativo de Cantabria

Año 2018

Fondo Europeo de Desarrollo Regional



## **“APPLICATION OF NEW NANOTECHNOLOGY PRODUCTS TO THE DEVELOPMENT OF SMART FABRICS”**

The INNOVA’s aid line is aimed at promoting industrial research and innovation in companies. The aim of this line is to support companies to develop innovative projects that can become a business reality and generate new products, services or processes and thus improve the business skills of the company.

The project **“APPLICATION OF NEW nanotechnology-based products in the pursuit of Intelligent textiles”**, developed by the company TEXTIL SANTANDERINA, SA, is a project co-financed by the Regional Ministry of Innovation, Industry, Tourism and Trade of the Government of Cantabria, within the call for INNOVA’s aid line of the year 2014.

The purpose of the project was to carry out an industrial research into new techniques to accelerate the dyeing or the incorporation of nanotechnology into textile fibres for the manufacture of smart fabrics, based on the application of new compounds (nanoparticles or nanostructures), with use in the field of safety, health or technical equipment.

In particular, the main focus was on developing smart textiles:

First, with the capacity to absorb or redirect the incident radiation, through the application of new metal oxides, dielectric materials or carbon nanostructures to functionalize the resulting fibers or tissues. This property could be the basis for the generation of thermal tissue for the control of body temperature, or even of tissues that provide some ‘invisibility’ under certain conditions for a range of the electromagnetic spectrum. On the other hand, with special thermal or electrical conduction properties through application of carbon or phosphorus derivatives, or metallic nanoparticles with high thermal or electrical conductivity or capacity to concentrate large amounts of energy into ‘Hot-Spots’.

In parallel to the previous points, the introduction of new materials in the industrial chain, in the environment and in the end user was studied in order to evaluate the potential impact derived from the use of nanotechnology in the company.

The company “Textil Santanderina”, which has developed this project, is a leading company in the textile sector in Europe. It was founded in 1923 and is located in the Cantabrian municipality of Cabezón de la Sal. It has designed and manufactured all types of textile fabrics, with a range of more than 500 products.

The company performs all the spinning, weaving and finishing processes and is equipped with state-of-the-art textile machinery, with a versatile and self-sufficient production system, which makes it possible to serve products at any levels of production and with any kind of finishing.

The company’s involvement in research, design and social and environmental commitment has allowed it to be successfully established on the international market.

In 2015, it received the University-Business Collaboration Award, in 2016, the Innovative Company Award, AITPA (Cotton Textile Foundation) and in 2017 the National Award for Fashion Header Industries

Cabezón de la Sal



The total expenditure assumed for the development of this project was EUR 311.271,10, of which an amount of EUR 296.271,10 is considered eligible, with a contribution from the European Regional Development Fund (ERDF) of EUR 71.648,60.

The impact of the aid is assessed at the municipal level; given that this is where its scope of action lies. In terms of employment, “Textil Santanderina” has created 8 jobs, taking into account that the number of affiliates in the municipality is 542 during the 2014 annuity, the aid has had a real impact on 1.48% of them.

This action can be highlighted as a good practice, according to the following criteria:

***The action has been properly disseminated among the beneficiaries, potential beneficiaries and the general public.***

Information and communication have been an element of the first order in the development and launch of the 2014 yearly INNOVA aid call, and specifically of the selected operation, ensuring publicity and transparency of the intervention and raising public awareness of the added value of Community co-financing through a wide range of tools and actions.

Thus, beyond meeting the regulatory requirements on information and communication, the following communication actions were carried out:

Inclusion on the company’s website related to the various R & D projects carried out, including the operation covered by this document, with reference to the co-financing received through the incorporation of the logo, reference to the Fund, aid intensity and the slogan, when it is linked to full information on the project.



Reference to the submission of the company's presentations of the co-financing received under the 2014-2020 ERDF Operational Programme for Cantabria.

**TS** TEXTIL SANTANDERINA SINCE 1929 14

## I+D+D:

**GRAFEN TEX**

Objetivo: Desarrollar nuevos tejidos retardantes a la llama en mezclas celulósicas utilizando **Grafeno procedente de grafito reciclado** (procedimiento mejorado con reducción de consumo energético -90% y de sustancias peligrosas -70%).

Financiado por el MINECO dentro del programa "Retos de Colaboración: I+D+i orientada a los Retos de la Sociedad."

### NANOTEX II: APLICACIÓN DE NUEVOS PRODUCTOS NANOTECNOLÓGICOS EN LA CONSECUCCIÓN DE TEJIDOS INTELIGENTES

Objetivo: Investigación industrial en tejidos para EPIs (destinados a seguridad y equipamiento Técnico) mediante el uso de Nanotecnología.

Resultados:  
Tejido de Alta Visibilidad Fotoluminescente Patentado.  
Nuevo camuflaje NIR-SWIR y protocolo de medida registrado.  
Nuevo tejido ignífugo (libre de sustancias químicas peligrosas)

Cofinanciado en el programa "INNOVA 2014"  
Desarrollado en colaboración con la UC

Placing of digital screens and a poster advertised in a visible position of the company, describing the project and referring to the ERDF Fund and the aid intensity.

INFO I+D+i **TS** TEXTIL SANTANDERINA SINCE 1929

El proyecto **APLICACIÓN DE NUEVOS PRODUCTOS NANOTECNOLÓGICOS EN LA CONSECUCCIÓN DE TEJIDOS INTELIGENTES** está siendo desarrollado por científicos y técnicos del Grupo de Óptica y de Textil Santanderina

Proyecto cofinanciado mediante la línea de subvenciones regionales INNOVA 2014\*

**INNPULSA**

**UNIÓN EUROPEA**

El objetivo es desarrollar tejidos inteligentes con uso en materia de seguridad, salud y equipamiento técnico, mediante la aplicación de nanotecnología.

**UC** **TS**

Inicio: 15/05/2014  
Duración: 2 años

\*Presupuesto total del proyecto: 296.271,10€, Subvención aprobada: 145.759,04€



Reference in the internal documentation (Official Gazettes of Regulatory Bases and Orders) for the co-financing received under the Cantabria ERDF 2014-20 Operational Programme and inclusion of the logo ERDF: <https://boc.cantabria.es/boces/verAnuncioAction.do?idAnuBlob=263372>

Likewise, it has been given a greater diffusion on the website of the management organ with the description of INNOVA's aid line:

<http://dgidtei.cantabria.es/innova-2014>

This diversity has enabled a broad dissemination of the business innovation support message and its contribution to the regional development of the European Union through the actions carried out.

***The action incorporates innovative elements.***

Quality and innovation are key building blocks in the central philosophy of the Textil Santanderina. Concepts around those involved in all business processes, with the aim of ensuring customer satisfaction. Textil Santanderina continuously work in the development of new tissues, such as the process included in the present operation. The company studies the trends and requirements of clothing manufacturers in order to adapt the fabric build-up to their needs.

For this, as in the case of this operation, agreements are reached with research organizations, such as the University of Cantabria, to incorporate the transfer of knowledge derived from the academic world in the business field.

To create added-value innovative tissues, the R & D department develops all sorts of chemical and mechanical tests, constantly experimenting with new developments and technologies.

Textil Santanderina has established a strict quality control system for all industrial processes involved in its production activities, in order to ensure an optimum level of quality at the various levels of manufacture, which is why quality certifications are of a global nature.

In this way, 40 % of staff in the company work in the quality and R & D fields.

Support is provided for training inside and outside the company, promoting worker's specialization through retraining courses and putting their expertise and facilities at the service of universities, institutes, schools and vocational training centers.

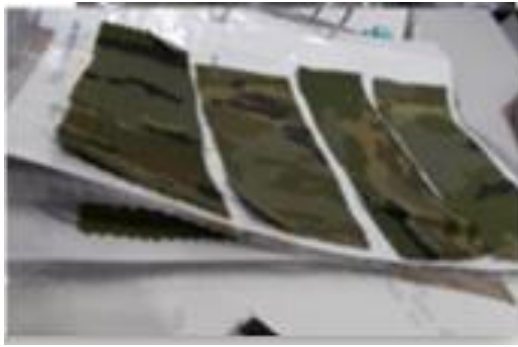
***The results achieved are in line with the objectives set.***

Through the development of the operation, it has been achieved, as envisaged in the aid application:

A fabric in High Visibility photo-luminescent, which is patented.

A new camouflage tissue with the corresponding measuring protocol registered.

Finally, a new fire-resistant tissue which is free of dangerous chemicals.



***It contributes to the resolution of a regional problem or weakness.***

One of the great weaknesses detected in terms of cooperation between regional agents is the reduced interaction between the scientific-technological sector and companies in Cantabria, which is why priority was given to work in the pro-activity of the University and Training Centers. R & D regarding technology transfer and staff mobility Company-University. Also, the analysis of the Regional Innovation System highlighted the low participation of companies in R & D activities, identifying a clear shortage of innovative companies in relation to the whole of Spain and the EU.

In any case, statistical data showed that the region was still far from the target of the private sector being two thirds of R & D expenditure proposed by the European Commission for 2020.

The project developed by Textil Santanderina would contribute to the reorientation of research to the needs of the production system, with a linked investment in this case to the cross-cutting smart specialization technologies, such as the nano-technology case, and the increased participation of a company in Cantabria in R & D & I funding programmes, which are objectives which are intended to be promoted in the Region.

***It has a high degree of coverage of the target population***

As a result of the development of the operation, it contributes to improving business competitiveness and thereby improving the conditions for the workers of the beneficiary company while co-financing the investment entails lower costs for the company that can revert to offering better conditions to its employees and encouraging them to lead innovation projects that recognize the research effort in the field of enterprise.

Moreover, through the investment aimed at the development of innovative products, it favors the improvement of the pre-existing ones in the domestic and international market targeted by this company with a clear exporter profile, so that the final consumers of these products are also benefiting from this type of investment.

***Horizontal criteria of equal opportunities and environmental sustainability have been taken into account.***

The company's commitment with the principle of equal opportunities for men and women and non-discrimination has also been present in the project. In the daily operation we work to obtain a responsible management of all internal processes of the company: machinery, management, packaging, etc., in order to guarantee its global traceability according to the Corporate Social Responsibility policy

40 % of the workforce in Textil Santanderina is composed of women and the average wage is the same for both sexes, enjoying all of the company's staff of social benefits such as salary payments in the first 3 days of work, or support for children's and social fund studies for long-term low staff.



From the perspective of the principle of sustainable development, the philosophy of the company throughout its activity is to develop a sustainable, ethical and environmentally friendly fashion.

Through technological innovation in processes and products, the enterprise is making progress in sustainability, and its textiles are firmly in favour of environmentally friendly and sustainable materials, such as cotton and flax recycled, as well as ecological tinctures, with recognised environmental certifications in the field of European textile.

Since 1989, Textil Santanderina has its own treatment plant, enabling it to save energy in all production processes, to keep carbon dioxide (CO<sub>2</sub>) emissions at the necessary levels and to reduce the generation of sludge.

Water consumption is also minimized and efficient plans are developed for reusing and recycling resources.

There has been an improvement in the way that management has been improved by making production cleaner.



***Synergies with other policies or instruments of public intervention.***

The INNOVA's aid, which was part of the INNPULSA 2012-2015 program was the main purpose of which was to transform a substantial part of innovation and talent into economic activity and that it was the seed of a gradual transformation of the production model.

This aid line is based on: "Innovation is learned by innovating". It wanted to help to reduce the complexity and entry barriers that many entrepreneurs face when starting their innovative activities, complementing other aids within the same programme, such as those in "INVIERTE" and "COMPITE" aid lines.

These aids are also in line with the provisions of the Spanish Strategy of Science and Technology and Innovation 2013-2020 and complement other supports to the business fabric that are subsidized by different agencies of the General State Administration, which may also have funding of the European Regional Development Fund within the framework of the Operational Programme Smart Growth 2014-2020 or of the SME Initiative Operational Programme 2014-2020.



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