

ProTexHeatINT

Functional Textile Products Designed for Heating and Other Smart Applications

SC MAGNUM SX – project manager

- Programme Director: Maria BUZDUGAN
- Programme: EUREKA
- Acronym: ProTexHeatINT
- Contract No. 317E
- EUREKA contract no.: E! 7218
- Priority area No. 7
- Title of the priority area: INNOVATIVE MATERIALS, PROCESSES AND PRODUCTS
- Scientific and technical area no.: 014 LIGHT INDUSTRY
- Title of scientific and technical subsector: Machines and equipment for the light industry; Light industry products and technologies
- Total project value: 1.810.500 lei
- Value of the state budget: 900.000 lei
- Project implementation time frame: August 2012 – August 2015
- Funded by UEFISCDI-Program Innovation - European Cooperation EUREKA-EUROSTARS Subprogram

Partners

- "Gheorghe Asachi" Technical University of IASI - Romania
- SC RO GALU PROD SRL- Romania
- UNITEKS Tekstil Gıda Motorlu Araçlar San.Tic.A.Ş – Turkey

Project description

Project objectives

- **The main objective of the project** is the design and development of various knitted innovative functional products obtained by integrating conductive threads in the fabric's structure. This process also involves the development of a design pattern in order to create new textile products that are able to offer specific functions by using conductive threads.
- **Specific objectives**
 - Obtaining optimised and functionalised products by using specific technologies of textile processing
 - Designing, developing and testing knitted products with high added value
 - Developing R&D activities with Turkish partners

Stages

- I. The assessment and diagnosis of the technologies used for developing textile products / articles that are functionalised, interactive, designed for heating purposes and of their areas of application, at a global level**
- II. The elaboration of the technology used for accomplishing knitted functional textile structures designed for heating**
- III. The development and optimisation of textile products containing heating elements and of their corresponding technologies**
- IV. The elaboration of a handbook describing the prototype models**
- V. Reporting the impact on the economy, following the implementation of the project's results and the promotion of the new obtained articles on the market**

Expected results

- Assessment and research reports
- Specifications regarding the accomplishment of the textile structure; measuring and testing bulletins; technical reports; Elaborated laboratory procedures; variations of multifunctional knitted structures containing electro conductive threads; demonstrational reports
- Functional textile products prototypes

- **Presentation handbook**
- **Project completion and implementation report – impact on economy**

Reporting STEP 1

The assessment and diagnosis of the technologies used for developing textile products / articles that are functionalised, interactive, designed for heating purposes and of their areas of application, at a global level

- **Activity I.1.** Assessment and diagnosis on nationally and European trends / international technical textiles functional heating: use areas / materials / technologies / methods for testing / European regulations;
- **Activity I.2.** Interdisciplinary study on the implementation of articles / heating functionalized textiles and smart textiles, using wires;
- **Activity I.3.** Identifying and defining the target group which uses the functional textiles for heating and other intelligent applications;

Results

- Evaluation reports and research

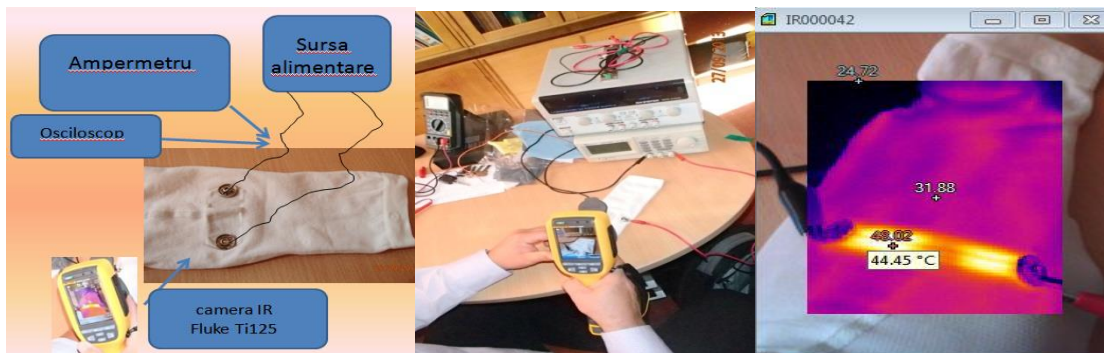
Reporting STEP 2

The elaboration of the technology used for accomplishing knitted functional textile structures designed for heating

- **Activity II.1.** Technologically-oriented design, the assessment and selection of the textile structures
- **Activity II.2.** The selection of raw materials and fabrics in order to manufacture heat-generating knitted textile structures
- **Activity II.3.** The selection of equipments, devices and accessories that will be used for manufacturing heat-generating knitted textile structures
- **Activity II.4.** The establishment of the parameters and of the technological flux for processing the materials
- **Activity II.5.** The manufacturing of various types of knitted structures/articles
- **Activity II.6.** The technological assessment of the manufactured types of knitted structures
- **Activity II.7.** The selection of the best types of knitted structures
- **Activity II.8.** The functionality of the selected textile structures is being demonstrated

Results

- **Technical reports**
- **Specifications and solutions for obtaining functional patterns**
- **Obtaining types of functional patterns for various textile structures/articles**
- **Report for demonstrating the functionality of the manufactured textile structures**



Reporting STEP 3

Developing and optimizing textile products with heating elements and corresponding technologies

Activity III.1. Establishing requirements and identifying the categories for heating textile products/articles

Activity III.2. Establishing components for the heating textile products/articles

Activity III.3. Establishing the technological process and execution parameters for heating textile products/articles according to the user's requirements

Activity III.4. Establishing the type of storage battery and accessories to be used for heating the textile products/articles

Activity III.5. Elaborating temperature monitoring techniques for smart heating textile products/articles

Activity III.6. Fabricating the heating textile products/articles

Activity III.7. Selecting the optimal versions

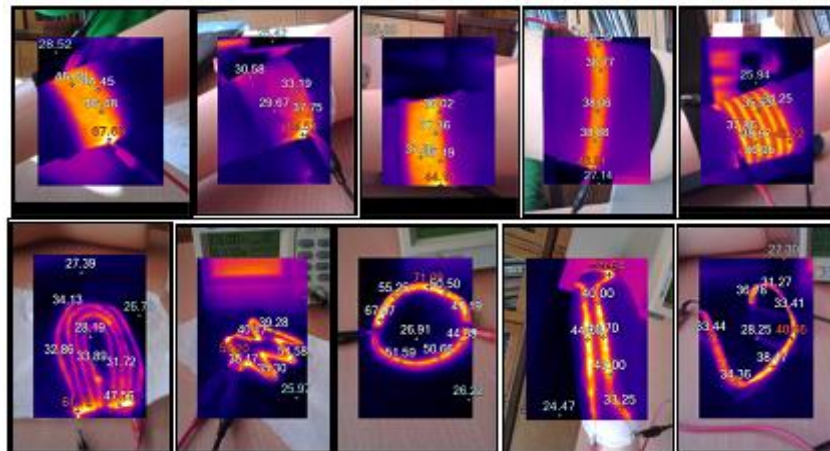
Activity III.8. Demonstrating the functionality and utility of the heating textile products/articles

Activity III.9. Identifying and protecting the intellectual property rights

Activity NI.3.1. Disseminating results

Results

- Specification booklets
- Solutions
- Demonstration reports
- Laboratory procedure
- Report for the functional experimental models
- Patent application



Results from evaluating the heating and electrical properties for the textile structures/articles - experimental models

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