

Valencia Action Plan

AITEX – Textile Research Institute (Spain)

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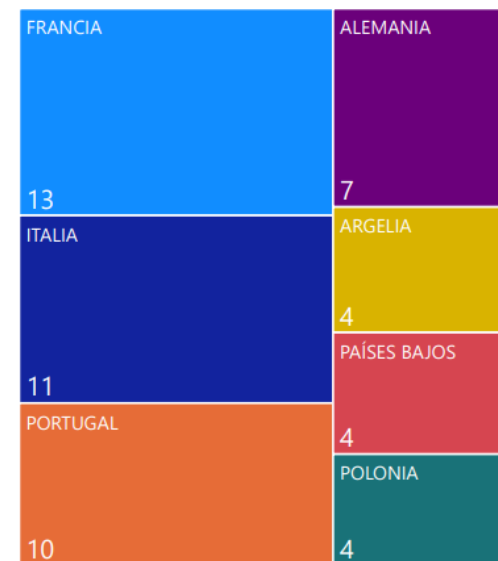
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1. INTRODUCTION. VALENCIAN TEXTILE SECTOR.

Updated data (2019) and figures extracted from RESET stakeholder IVACE:

- **22% of the Spanish textile companies** are located in the Valencian region (1,661 companies).
- **15% of the national T&C industry are Valencian companies** with several foreign customers (**exporters**).
- Value of these **exported goods: 917M€**.
- **Textile industry represents 3% (around 1,550M€) of the total turnover** of the whole Valencian industry.
- In Spain, **Catalonia and Valencia regions are leaders** on home-textiles, knitting goods and finishing processes.
- Mainly in Valencia, the finishing subsector has around 150 textile companies (source: AITEX, 2018) with a turnover of 150M€.



Main destinations (in %) of Valencian textile exports.

Topics of RESET project are critical to gain added value!

1. INTRODUCTION TO AITEX

Spanish leading research and innovation centre (private non-profit association, est.1985) and provider of **advanced technical services to the textile industry.**

It performs **characterization trials and certification of textile materials and articles** for a wide range of **sectors** including interior design and home-textiles, fashion, workwear, healthcare and PPEs, sports and leisure, transport, aerospace and sports surfaces.

Active **participation in national & international R&D projects. Researching groups:**

- Nanotechnologies and technical fibers.
- Textile finishing, health & cosmetics, and environment.
- Sustainable materials and composites.
- Smart textiles and Information and Communication Technologies (ICTs).
- Fashion and design.



AITEX's headquarters in Alcoi (Alicante, Spain)



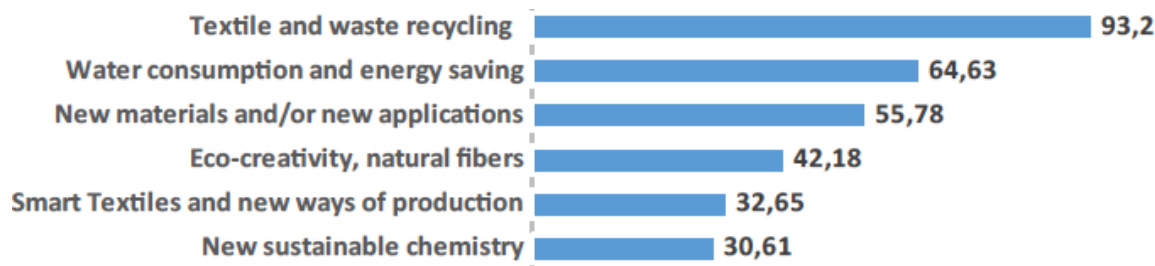
AIR KNIFE COATING



2. STRUCTURE OF THE VALENCIAN ACTION PLAN.

The Valencian Action Plan (AP) developed by AITEX was defined always **having in mind the textile companies.**

Reasons? Not only to reach the main RESET indicator for AITEX at the end of the project, but mainly as **they usually participate in R&D projects dealing with the 6 Themes of RESET** (as concluded by the research study developed by project stakeholder IFEDDES during Phase 1).



% of Valencian companies declared they developed any R&D project or specific action in last 5 years, aligned with the RESET themes (IFEDDES, 2018).

Textile and waste recycling



Water consumption and energy saving



New materials and/or new ways of production



Smart Textiles and new ways of production



Eco-creativity, natural fibers



New sustainable chemistry



3 most important RESET themes for Valencian textile companies. (IFEDDES, 2018)

2. STRUCTURE OF THE VALENCIAN ACTION PLAN.

ACTION 1: MONITOR THE IMPLEMENTATION OF (ALREADY) APPROVED PROJECTS WITH EDF FUNDS

Since mid-2017 to mid-2018 **6 projects** were launched by Valencian textile companies, **aligned with RESET Themes and inspired by some good practices** (GPs) shared in the International Learning Events (ILEs). Those industrial projects were **submitted and funded** by Spanish National/Regional Authorities.

During the execution of the projects the following activities (or sub-actions) were needed in order to **monitor and track the implementation**:

1. Continuous meeting between companies, stakeholders and AITEX.
2. Internal reporting to follow-up the activities performed.
3. Official reports to the National/regional Authorities.
4. Official meeting with National/regional Authorities.
5. Post-project monitoring and needs for industrialisation of the results.

Timeframe of this Action 1: 01/04/2019 - 30/06/2020.

2. STRUCTURE OF THE VALENCIAN ACTION PLAN.

ACTION 2: SUBMISSION AND PRESENTATION OF NEW PROJECTS

AITEX continued, with stakeholders ATEVAL & TEXTIL ALCOYANA (along 2019, 2020 and 2021), **spreading on T&C companies the knowledge acquired and lessons learnt** during the RESET ILEs. In fact, **4 new projects were proposed to companies along 2019 and 2 more until April 2020**. They have been **funded, implemented and monitored** in the same way than those considered in Action 1.

1. Analysis of each specific GP at technical level and how it can inspire a project.
2. Meeting with the company (and stakeholder if required). First approach.
3. Proposal and presentation of project idea inspired by the GP to the company.
4. Study of the Regional/national call for submitting the proposal.
5. Selection of the final applicant, elaboration and submission of the proposal.
(Funding expected... The project starts to run)
6. Execution and monitoring of the project (supported by AITEX/stakeholder).
7. Post-project monitoring and needs for industrialisation of the results.

Timeframe of this Action 2: 01/04/2019 - 31/03/2021.

3. DEPLOYED ACTIONS: THEIR RESULTS – Action 1

PROJECT NAME AND COMPANY	Parts of the project inspired/done with learning from RESET
New processes for the preparation and finishing of fabrics for contract” (Ind. Bitex)	GP “Multiplexed Laser Surface Enhancement- MLSE” (ILE2) claimed for dry finishing processes, using gasses as raw materials for treating textiles, not chemical products by wet processes. It inspired the WP4 work on research about feasibility of the ozone (gas) treatment for the preparation and bleaching of fabrics prior to digital printing by sublimation.
W-FREE. Development of new spinning processes for fashion and home textile (H. Ferre)	GP “Multiplexed Laser Surface Enhancement- MLSE” (ILE2) claimed for dry finishing processes, using gasses as raw materials for treating textiles, not chemical products by wet processes. It inspired the WP1 work, a preliminary research/study about the dyeing concept to be implemented: use of supercritical CO2 gas (not water) as a solvent for dyeing.
JEANSTRACK - R&D in the application of the look jeans to the sport technical clothing (Dadayp)	GP “Detox: from threat for brands to opportunity for labs and manufacturers” (ILE3) and the commitment to eliminate hazardous chemicals was the inspiration of this project. As part of the work done in WP3 of the project, the Valencian company research on some fluorine-free compounds and the feasibility to reach good liquid repellency level on jeans finishing.
R&D of new products with eco-sustainable finishing for the leather sector (Inpelsa)	GP “Detox: from threat for brands to opportunity for labs and manufacturers” (ILE3) and the commitment to eliminate hazardous chemicals. It inspired the company to launch a project focused on reduction of chemical products used during the production of leathers. Detox and ZDHC rules were considered by the company in the implementation (WP2) of new treatments (e.g. chrome-free tanning and fluorine-free compounds).
BLENDYE - New textile dyeing process for blended threads (JMoltó LT)	“Sustainable chemistry method to improve the wash-off process of reactive dyes on cotton” (ILE3) was the GP inspiring this process. The chemical solution described in the GP for removing unfixated (hydrolysed) dyes was adopted/modified along WPs 1-2 by the company to develop its own dyeing process.
New heatable textiles for hometextiles - contract sector (Resuinsa)	ACCLYTEXSYS (ILE6) was the GP influencing this project. The GP aimed to study the conceptual development and evaluation of different technological approaches for the stabilization of the soldier’s body temperature. The main structure of the system (wearable electronic devices for data acquisition, temperature body sensors, power supply unit, heating elements, etc.) was considered by the company and inspiring WPs 1-2, to develop the project based on heatable textiles for home-textiles (contract sector).



End products from JEANSTRACK project, denim-like garments for outdoor sport/activities.



Leather manufactured by Inpelsa.

3. DEPLOYED ACTIONS: THEIR RESULTS – Action 2

PROJECT NAME AND COMPANY	Parts of the project inspired/done with learning from RESET
Technical and sustainable dyeing process (JMoltó LT)	Inspired again by the sustainable washing process of unfixed dyes described in “Sustainable chemistry method to improve the wash-off process of reactive dyes on cotton” (ILE3). The company has identified some auxiliary chemicals with the same role than the Dye Transfer Inhibiting (DTI) polymers described in the GP. Then the company, along WPs 1-2 of its project, has set-up a new pilot dyeing process.
Functionalization of mattress fabrics with a biotic-based finish (Colchones Delax)	The medical and therapeutic point of view of the GP “Smart socks for sports and medical applications” (ILE4) inspired this project. Methodology to re-think and re-design a common textile product (to transform it into a functional product with medical uses, promotion of health and wellbeing) was adopted by the company at the beginning of its project (WP1).
New technical open-end yarns from recycled wastes (R. Belda)	Project influenced by GPs “CORK-A-TEX YARN: Eco-Creativity in Home Textiles with Cork” (ILE5) and partially by “Textile blankets made from plastic bottles wastes” (ILE1). Methods to detect useful waste sources and the example described about how to implement recycled PET (r-PET) into the textile value chain were the ideas considered by the company along WP1 to design and set-up its new open-end spinning process.
Self-adhesive coatings for textile decoration (Protec Textil)	Project inspired by the GP “New professional antibacterial and self-cleaning insect screening” (ILE6). The company adopted (along WP1) the methodology to implement new functionalities (thermal & acoustic insulation) on common home-textile products.
Natural-based textile finishing processes with antibacterial performance (Pascual y Bernabeu)	GP “Medical antibacterial textiles obtained on a pilot line based on sonochemical process” (ILE3) inspired the main idea to develop this Project. The GP focuses on novel metal-based antibacterial particles to improve antibacterial performance on textiles. The company took inspiration from this novelty in WP1 of its project but paying attention to natural-based antibacterial compounds (vegetal extracts and essential oils), instead of metal derivatives.
Fabrics with antibacterial / antiviral performance against coronavirus for contract, elderly people and hospitals (Ind. Bitex)	Project inspired by “Medical antibacterial textiles obtained on a pilot line based on sonochemical process” (ILE3), as some metal-based particles are active against bacteria and virus. The company has explored, along WP1 of its project, the possibilities to implement functional yarns and chemical finishing on Contract textiles for fighting against covid-19, complemented with aesthetic performance by using Jacquard and digital printing technologies.



‘Acuario1’ collection (last R&D project from Ind. Bitex): digitally printed textiles coming from recycled raw materials, providing 99% of antiviral activity against FCov coronavirus (ISO 18184:2019).

4. CLOSING REMARKS.

- **RESET project and AITEX have contributed**, through lessons learnt and inspiration from other EU projects and good practices, to **increase the technological level, product portfolio and sustainable profile of Valencian textile companies.**
- It's clearly detected, and **transmitted from Valencian companies**, that **sustainable processes combined with technical improvement are critical**, not only **to compete** with textile industry from emerging countries, but **even to survive.**
- Up to **12 industrial projects** have been developed by **10 enterprises** (expected: 7) cooperating with the R&D centre. AITEX estimates that **more than 440k € of ERDF funds have been mobilized** and **up to 105k € directly influenced by RESET**, through the Valencian ERDF Regional OP 2014-2020.
- **RESET structure and vision could be replicated on other EU large industrial sectors:** chemistry, ceramics, footwear, furniture, food, tourism...

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