



PROJECT DELIVERABLE REPORT

Grant Agreement no: 315497

TEX-SHIELD

Environmental friendly and Durable Oil and Water Repellence Finish on Technical Textiles

Collaborative Projects
SME-2012-2

Type: Deliverable

D7.2 Project Activity and Financial Management Report

Issuing partner	NWTEXTNET
Participating partners	NWTEXNET, UP-TEX, UNITEX, TECHTERA, PANAZ, Eva Commerce, DECCA, SamprasNANO, CTF2000, TWI, INSA-LYON, UCG
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Dissemination Level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	x

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1.0 Introduction

The overall project aim was to provide the European textile industry with an alternative material to PFC-C8 whilst refining comparable performance. The intention was that this would be achieved through extending understanding of various other alternatives to deliver durable water and oil repellent coatings. With this knowledge, it would be possible to develop cost effective, environmentally friendly solutions that bond to the fabric providing durable multifunctional performance.

1.1 Scientific objectives

To generate a greater understanding of the relationship between new fluorosilicone water based hybrid emulsion textile treatments and their impregnation on textiles, in order to produce multifunctional, durable fabrics that are environmentally friendly without altering the feel of the fabric. A key aspect of the project was to look at the advancement of sol-gel solutions and development of materials to address performance requirements, specifically:

- The identification of the optimum siloxane composition including all key functional groups, specifically:
 - Chemical ligands to provide covalent bonding to a range of textiles.
 - Stable long-chain hydrocarbon groups to provide low surface energy.
 - Hydrophilic groups to enable water dispersion.
- The establishment of a fabrication methodology to allow the reproducible production of the siloxane building blocks.
- The production of a water-borne dispersion of the optimum siloxane composition.

1.2 Technological objectives

To develop molecular structures, which incorporate both low surface energy 22(mN/m) properties and suitable binding groups, facilitating the chemical bonding to the fibre surface and yielding a high performance product. The specific objectives were to:

- Develop repellent treatments with fluorine content of less than 0.05% by weight on the final coated textile compared with 0.1-3.0% for the current state-of-the-art, by the use of long chain hydrocarbon groups.
- Develop repellent treatments with high durability demonstrating no loss of performance after 50 washes, by the development of covalent bonding between the treatment and the textile.
- Develop a water-borne coating that can be applied to textiles using standard immersion deposition techniques to produce a suitable layer on the surface of the fabric, without excessive loading, which would negatively alter the material properties (e.g. weight and stiffness).
- Establish the techno-economic benefit of the treatment showing REACH compliance and environmental responsibility, whilst also achieving the cost base viewed as acceptable by the project partners.

2.0 Document Scope

The objective of this document was to ensure that all the project activity has been completed.

3.0 Project Status

All project and financial activities pertaining to the project have been finalised and submitted in accordance with the contract requirements. The required deliverables have been uploaded to the project portal.