



HELLENIC REPUBLIC
Ministry of Education,
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GENERAL SECRETARIAT FOR
RESEARCH AND TECHNOLOGY

EPAnEK 2014-2020
OPERATIONAL PROGRAMME
COMPETITIVENESS
ENTREPRENEURSHIP
INNOVATION

HELLENIC REPUBLIC
MINISTRY OF
ECONOMY & DEVELOPMENT
SPECIAL SECRETARY FOR ERDF & CF
MANAGING AUTHORITY OF EPAnEK

ΕΣΠΑ
2014-2020
ενίστημα - εργασία - αλληλεγγύη
Partnership Agreement
2014 - 2020

Co-financed by Greece and the European Union



Development of a *Textile* with *Silica* coating for environmental friendly control of insects in *Agricultural* production

Deliverable [11]: *[Coated woven fabric]*

Version 1.0: first version delivered on 28/03/2019

This project is co-financed by the European Union and Greek national funds through the bilateral Greece-Germany S & T Cooperation Program, Competitiveness, Entrepreneurship & Innovation (EPANEK) (project code: T2DGE-0120).



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Del [11]: [Coated woven fabric]

 AgriTexSil

UNIVERSITY OF
THESSALY

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Institut für
Textiltechnik und
Lehrstuhl für
Textilmaschinenbau

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 wedePol
smarter polishing

 P & S
Powder
and
Surface
GmbH

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1. Summary

In this deliverable the production of coated woven nets is described. Initially, two type of yarns (multifilament and monofilament) were produced so as to be subsequently used for the construction of woven insect nets. After conducting weaving trials, the monofilament yarns were found to be suitable for the production of insect nets. Therefore, monofilament yarns were used for the production of three different types of woven nets. Specifically, 25, 40 and 50 mesh woven nets were produced in flat shuttle looms. The differences in the construction of the nets resulted in nets with different opening sizes and ventilation properties. The silica coated woven nets were produced with pilot plasma coating unit. In this process, the polymer is plasticized by a cold plasma jet. The silica particles are inject with a special distribution pump into the plasma jet and melted in the surface of the polymer. Therefore, no additional adhesive is need, which could destroy the nanostructure of the silica particles.

Coated textiles were analysed in microscopy for light transmittance as well as for air permeability and tenacity, as shown in Figure 1. It was shown that the coating of the textile does not have a negative effect on the tenacity, but does influence the air permeability and the light permeability. The biggest effect is thereby caused by the particle size, where bigger particles result in a bigger reduction.

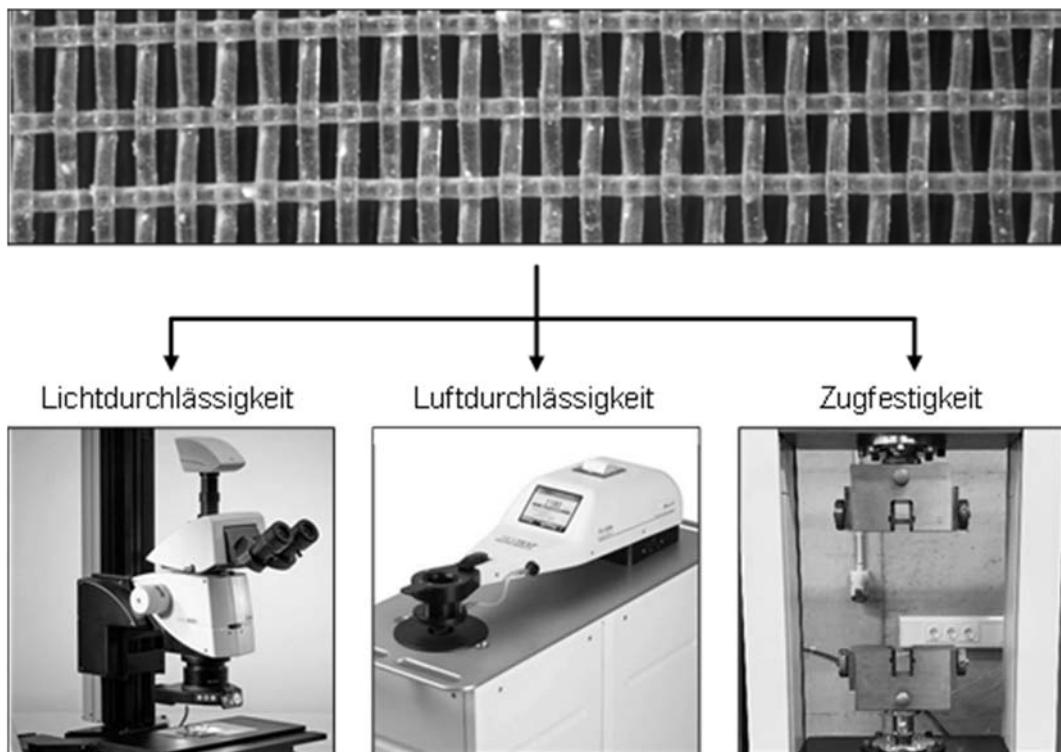


Figure 1: Testing methods for coated textile

Del [11]: [Coated woven fabric]

The deliverable is available upon request

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