

POLYMERIC IMPREGNATION INFLUENCE ON DIFFUSE REFLECTION AS THE MAIN CHARACTERISTIC FOR DETERMINATION OF CAMOUFLAGE PROTECTION PROPERTIES OF MILITARY TEXTILES

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There are two important features that have a significance when the camouflage protection abilities are in question. First, dyeing of the material and everything related to process of dying and the influence of the material impregnation which is most commonly used to improve physical and mechanical properties of textile. In our initial research, we examined influence of textile impregnation on the value of diffuse reflection within visible and near-infrared region of the electromagnetic spectrum. Some questions arose and we continued that initial research. The aim of this paper is to try to give answers on those questions.

In the experiment polyamide cloth samples dyed with specific camouflage dyes and impregnated with polyurethane (pu) and chlorosulfonated polyethylene (csm) were used. Spectral reflection measurements in the wavelength area from 400 nm to 1000 nm were performed for the light green, beige green, dark green, brown and black tone for impregnated as well as for non-impregnated samples. The measurements were conducted using the uv/vis/nir spectrophotometer uv 3600 from a japanese manufacturer shimadzu with an integrating sphere. The measurement uncertainty was 2% and the uv probe programme package was used. This first experiment showed that impregnation affects the value of diffuse reflection, therefore further tests have been conducted.

Here, we present results of the scanning electron microscope (sem) analysis. Samples were analyzed using jeol jsm-6610 in lv (low vacuum) mode and a voltage of 15 kv was applied, for same types of samples and same shades. The results did not show great difference between samples. Regarding the values of diffuse reflection, however, we still need to find a way to explain obtained differences so further tests will be performed such as ftir or eds.

Key Words: *diffuse reflection, SEM analysis, camouflage textiles*

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