

ECOLOGICAL CLEANING SYSTEMS FOR OLD ICONS PAINTED IN TEMPERA

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Abstract. Old icons, especially those involved in liturgical rituals are affected in time by external agents factors (temperature, humidity, light, pollution, microbiological attack, abrasion etc.), resulting changes of the appearance and of the structural integrity, dirt deposits, altered varnish and painting layer, cracks, material loss etc. In order to remove the dirt deposits, there are used cleaning systems with dry wiping, vacuuming, scraping, washing with organic solvents, ion exchange solutions, polyelectrolytes, surfactants, and so on, by enzymatic systems or by laser pyrolysis. The last two processes being considered aggressive and highly invasive, although they do clean very well adherent dirt deposits, which strongly degraded the varnish to total blackening (the iconographic image cannot be seen). Based on the literature in the field, regarding the nature of the materials used during the painting process and of the types and structures of the deposits, a series of alcoholic solutions of different concentrations were made, as such or basified, which were compared with ecologic synergic systems based on organic uncolored vegetable juices and decoctions from dried plants. The cleaning effectiveness was done by visual analysis and CIE $L^*a^*b^*$ reflection colorimetry, space proposed by the CIE (International Commission on Illumination) in 1976, was used. This technique permitting to determine by color deviations the critical point where the patina and polychromes layer.

Keywords: degraded varnish, deposits of dirt on tempera, wash tests, solvents, vegetable extracts, decoction of dried plants, CIE colorimetry reflection $L^*a^*b^*$.