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The Influence of Hydrothermal and UV Treatment on Properties of Leather Used in Book Conservation

Abstract

Ageing and degradation, which occur as a result of various factors affecting leather and other materials used in the conservation of archival material, are of great importance. The aim of this study is to explore the influence of hydrothermal and UV ageing on the properties of two types of leather that are used in book conservation.

In order to gain an insight into the changes of properties caused by the hydrothermal and UV treatment, the samples were artificially aged under the influence of humidity, heat and UV light (254 nm) over a long period of time. The structural changes of leather upon degradation were analysed by the FTIR spectroscopy, whereas the analysis of the surface characteristics was carried out by contact angle measurements. The morphological changes were observed by using of the scanning electron microscopy (SEM).

The structural changes depending on the type and duration of treatment have been confirmed by the FTIR spectra analysis and by changes of the surface characteristics. The morphological study confirmed the differences in the structure of each type of leather, as well as the changes caused by the hydrothermal and UV treatment.