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COST IE0601: Investigations of the distribution and the decontamination of classical pesticides and synthetic pyrethroids in historical wooden objects by neutron and X-ray imaging

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In the second half of the 20th century many wooden museum objects were treated with pesticides to protect them against insects. Today, some of these toxic pesticides have effloresced on the surfaces or are emitted into the indoor air of storage rooms or exhibitions. In order to prevent the conservators and visitors from health risks it is inevitable to decontaminate these objects. In the project the penetration of pesticides into the wood was investigated and two decontamination methods were evaluated: A vacuum washing and a vacuum temperature method. First, dummies were immersed in a mixture of pesticide with different solvents. With neutron imaging the penetration depth of three different solvents which are carriers for the pesticides was visualized. As a result depth profiles could be created. In a second step two decontamination methods were adopted to the wooden dummies. This abstract focuses on the vacuum washing method. Neutron radiography was used to visualise how deep the water of the vacuum washing cleaner penetrates the wooden structure. Furthermore, the influence on the micro structure of the wood of both decontamination methods was investigated by μ -X-ray tomography.

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