

## **An Archaeometric Study of Lead-White Pigment and its Production using Neutron Diffraction**

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In antiquity up to very recent times lead-white pigment was widely used. However the structures of its phases as well as the interaction of the lead-white pigment with oil are not well known. In this paper we look at the different production processes of the lead-white through the ages by means of historically based reconstructions (the Dutch stack method, the German and French production processes). The products involved in the different stages of the lead white production process are characterised by means of Rietveld phase analysis of neutron diffraction data. The interaction of linseed oil, produced according to historical recipes, with the lead-white pigment as well as with the hardener materials is studied using paint reconstructions under varying external conditions. Neutron diffraction can also be used in this case to obtain information on the reacted products.

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