

EVALUATION OF ANOXIC ENVIRONMENTS FOR THE DISPLAY AND STORAGE OF WORKS OF ART ON PAPER

Jacob Thomas^{*}, Andrew Lerwill, Joyce H. Townsend, Stephen Hackney
Tate, Millbank, London, SW1P 4RG, United Kingdom

^{*}Correspondence: jacob.thomas@tate.org.uk; Fax: +44 (0)20 7887 8982

Over the past decade controlled atmosphere environments have received increased attention within the cultural sector. Anoxia has been used in multiple applications from de-infestation to long-term storage and display of various classes of objects. However, to date, there has not been published a detailed study of the effects of anoxia on various classes of cultural objects. Rather anoxia has been perceived as being safe *a priori*. This may not be the case for certain materials.

The Anoxic Framing Project at Tate is evaluating the efficacy, efficiency, and risks of anoxia with respect to both storage and display of works of art on paper. Work concentrates on the monitoring of produced volatile organic compounds (VOCs) and colorimetric behaviour of artist's materials within various anoxic environments under accelerated aging conditions.

Headspace-Gas Chromatography/Mass Spectroscopy (HS-GC/MS) is used to identify and quantify volatile degradation products from the object/mounting system. By quantifying target analytes in parallel anoxic and oxygen-containing systems, it is possible to draw conclusions about the relative rate of chemical degradation of the object in the system. Through HS-GC/MS it is also possible to monitor for biological activity by screening for volatile metabolites.

In conjunction with the headspace studies, anoxically fugitive colorants are identified and fading and colour change in the substrate and applied artist's materials are monitored.

From this work Tate will be able to identify classes of objects and specific artist's materials that are and are not suitable for display and storage in anoxia. As well as make more definite statements about the permanence and relative stability of different classes of works of art on paper.