

31/2011 - St Michael's and All Angels' Church, Thornhill, Dewsbury, West Yorkshire. Scientific Examination of Stained Window Glass

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Summary

The chemical composition of a selection of window glass from Thornhill parish church was investigated in order to contribute to its conservation. The window glass includes examples of 15th-century stained/painted medieval window glass which has suffered from significant degrees of deterioration. The conservation treatment of these windows is being funded by English Heritage. Several different potential causes for the deterioration of the historic window have been advanced. The investigation included the chemical analysis of 55 panes of glass carried out in situ using a portable x-ray fluorescence (pXRF) spectrometer. In addition, five samples recovered from a 15th-century tomb were analysed using both pXRF and laboratory-based instruments. The glass includes both medieval forest glass and later high-lime low-alkali (HLLA) glass. The pXRF data could be used to identify the type of glass even where the result was affected by surface corrosion. The SEM-EDS data indicates that much of both the Forest glass and HLLA glass at Thornhill contains a very low molar proportion of SiO₂ which renders it unstable and susceptible to significant deterioration.

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