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SURFACE ANALYSIS OF GLASS FROM THE 15 TO THE 20 CENTURY
BY
X-RAY PHOTOELECTRON SPECTROSCOPY, SIMS AND SEM
TECHNIQUES.

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X-ray Photoelectron Spectroscopy can be applied to the study of bonding properties of metal oxides in glasses, since it is a highly surface sensitive technique probing= 30 Å deep. Electron states of specific elements can be individually and quantitatively examined. However it is clear that simple alkali-silicate glasses in the presence of water, show a rapid depletion in the surface-alkali concentrations presumably an inter diffusion process occurs at the solid-leachant interface wherein the alkali ions diffuse toward the surface and out of the sample at equal rates so as to maintain local charge neutrality. The elements present in these glasses were examined and compared on either sides of the glass by XPS, SEM as well as positive and negative secondary ion mass spectrometry techniques.