



*Glass sickness: Detection and Prevention. Investigating Unstable Glas in
Museum Collections*

G. Verhaar

Glass sickness: detection and prevention

Abstract

The chemical deterioration of glass in museum collections is a large problem for conservators and curators. Objects of unstable composition typically show changes in appearance such as the accumulation of moisture on the surface and microcracking, which may render an object unfit for display or even cause its complete disintegration.

The identification of unstable glass objects is essential for their preservation as it allows for the implementation of targeted conservation strategies, but, as yet, no straightforward method exists. As it has been estimated that up to 30% of glass objects are susceptible to irreversible chemical deterioration, it is vital that glass degradation is identified at an early stage and that suitable storage conditions are in place.

Accordingly, this study focuses mainly on the early stages of glass deterioration. In particular, the presence and quantity of ions on glass surfaces, liberated from the glass during deterioration in the display or storage environment, is studied. The detection of key ions in very low concentrations, before surface changes become visible to the naked eye, provides conservators with the potential to identify glass objects which require special care to prevent ongoing deterioration. Hence, this research contributes to the discussion on the conservation of vulnerable glass objects and provides insight into fundamental deterioration mechanisms of historic glass.