Basic data on glass structure and its influence on viscosity

Daniel Neuville*†[1] and Laurent Cormier‡[2]

[1]Université Paris Cité, Institut de Physique du Globe de Paris, CNRS, UMR 7154, F-75238, Paris – IPGP Paris – France

[2]IMPMC, Sorbonne University, CNRS, MNHN, IRD, Paris – Sorbonne University – France

Abstract

After the initial presentation laying the foundations of the glass structure studied since the first diagram proposed by Zachariasen in 1932, using a variety of techniques, we will try to understand how structure and chemical composition influence macroscopic properties, like viscosity variations. In this presentation, we will review the various techniques for measuring viscosities and discuss intrinsic errors, then explain the role of the various elements - network formers, network modifiers and charge compensators - and how they affect viscosity, specific heats and a number of other macroscopic properties.

Keywords: Glass structure, Viscosity

*Speaker

†Corresponding author: neuville@ipgp.fr

‡Corresponding author: laurent.cormier@sorbonne-universite.fr