Structure and Dynamics of High-Temperature Strontium Aluminosilicate Melts

Pierre Florian^{1,*}, Alexey Novikov^{1,2}, James Drewitt³, Louis Hennet¹, Vincent Sarou-Kanian¹, Dominique Massiot¹, Henry E. Fischer³ and Daniel R. Neuville²

- ¹ CNRS, CEMHTI UPR3079, Université d'Orléans, F-45071 Orléans, France
- ² IPGP UMR7154 CNRS, Géomatériaux, Paris Sorbonne Cité, 75005 Paris, France
- ³ School of Earth Sciences, University of Bristol, Bristol, BS8 1RJ, UK
- ⁴ Institut Laue-Langevin, 71 avenue des Martyrs, CS 20156, 38042 Grenoble cedex 9, France



Figure S1. Evolution of the ²⁷Al NMR line width during free cooling of all compositions studied: (a) on the charge-compensation line (R = 1), (b) in the per-alkaline field (R = 3) and (c) in the per-aluminous region (R < 1).



Figure S2. ²⁷Al chemical shifts at 2000°C $\delta_{2000°C}$ (red) and "barycenter" of the glass spectra $<\delta_{iso}>_{glass}$ (see text for details) (blue) for R = 1 (rectangles), R = 3 (triangles) and R < 1 (circles) compositions all given as a function SiO₂ content. Continuous lines are linear fit.



Figure S3. ²⁷Al chemical shifts at 2000°C $\delta_{2000°C}$ (red) and "barycenter" of the glass spectra $<\delta_{iso}>_{glass}$ (see text for details) (blue) for R = 1 (rectangles), R = 3 (triangles) and R < 1 (circles) compositions all given as a function SiO₂ content. Continuous lines are linear fit, grey lines are guides for the eyes for compositions at a given [SiO₂].



Figure S4. 27Al NMR MAS experiments (20.0 T) of peraluminous glasses.