

Chemical durability of soda-lime glass in aqueous acid solutions

Ionela CARAZEANU POPOVICI^a and Naliana LUPASCU^b

^a*Department of Chemistry and Chemical Engineering, Ovidius University of Constanta, 124 Mamaia Blvd,
900527 Constanta, Romania*

^b*Pedological and Agrochemical Studies Office, 17-19 Revolutiei Street, 900735 Constanta, Romania*

Abstract Acid dissolution of soda-lime glass was rigorously investigated. Aqueous solutions containing 1N HNO₃, HCl, H₂SO₄ and CH₃COOH were used to measure the durability of the soda-lime glass samples. Flame emission spectrometry (FES) and UV-visible absorption spectroscopy were used to determine the concentration of Na⁺, K⁺, Ca²⁺ and Si⁴⁺ ions in solutions after dissolution. Weight loss analyses and microstructural characterization were used to evaluate the compositional changes of the glass samples.

Keywords: glass, chemical durability, silicates.
