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# Phase transition phenomena in an iron phosphate glass and thermal stability criteria

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**Abstract :** The thermal stability of an iron phosphate glass dedicated to radioactive waste confinement is a crucial characteristic for the integrity of the waste package. In this study, we investigate the thermal stability criteria defined by Hruby, Weinberg and Lu/Liu by measuring the glass transition temperature ( $T_g$ ), the crystallization temperature ( $T_c$ ), and the melting temperature ( $T_m$ ) of an iron phosphate glass loaded with radioactive waste. These temperatures decrease when loading the glass with the waste:  $T_g$  decreases from 623.48 °C to 580.04 °C,  $T_c$  from 766.34 to 679.26 °C and  $T_m$  from 932.76 °C to 919.75 °C. Thermal stability criteria show satisfactory values, in the interval 0.14 to 0.69.

**Keywords :** Iron phosphate glass, Thermal stability, Radioactive waste, XRD, DTA, SEM