

***In-situ* analysis of steelmaking slags and fluxes at elevated temperatures using a remote fiber optic Raman probe**

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ABSTRACT

An *in-situ* fiber optic Raman probe that enables the study of the structure, composition, and properties of molten slags and fluxes at steelmaking temperatures has been developed and demonstrated in the lab for sample sizes of up to 1 kg. Raman spectra were successfully collected at various temperatures in real-time and analysed using a deconvolution algorithm to isolate and quantify peaks in the spectra associated with specific structures of molecular components in molten and solidifying slag and flux samples. Specific ratios of the deconvoluted peaks show good correlation with composition and with properties such as basicity and viscosity. Ultimately, our goal is to demonstrate *in-situ* slag and mold flux monitoring in industrial production.