

Programme & The Book of Abstracts

Seventeenth Annual Conference

YUCOMAT 2015

Herceg Novi, Montenegro, August 31 – September 4, 2015

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MATERIALS RESEARCH SOCIETY OF SERBIA

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20th Anniversary YUCOMAT Conference

SEVENTEENTH ANNUAL CONFERENCE

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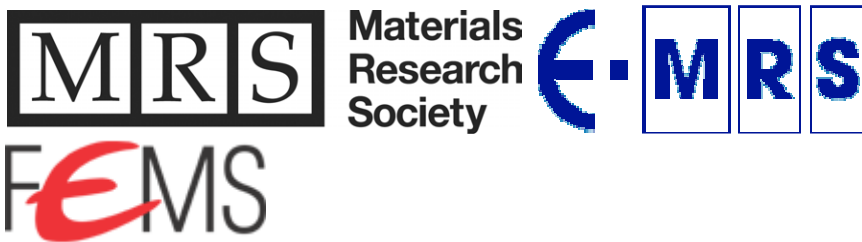
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**Thermal Resistance of Alkali Activated Binders Synthesized
Using the Fly Ash and Steel Slag**

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The thermal resistance of alkali-activated binders based on fly ash (FA), electric arc furnace slag (EAFS) and their FA/EAFS blends was assessed. Compressive strengths of samples before and after firing were measured. The samples were characterized by X-ray powder diffraction (XRPD), scanning electron microscopy (SEM), energydispersive X-ray spectra (EDS), thermal (TG/DTA) analysis. Besides, the sintering shrinkage were recorded by thermomechanical analyzer (TMA) during non-isothermal sintering up to 900 °C with heating rate of 15 °/min, in an air atmosphere.

The main reaction products in FA and EAFS based alkali activated binders are the sodium-alumino-silicate-hydrate (N-A-S-H) and calcium-alumino-silicate-hydrate (C-A-S-H) type gels, respectively. FA/EAFS based binders are characterized by the presence of N-A-S-H gel with the high content of Ca. The EAFS based binders exhibited superior performances in terms of compressive strength than FA based binders. Thermal resistance of FA based binders was improved by the slag addition.

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