ABSTRAK

PENGARUH VARIASI KOMPOSISI $CaCO_3$ TERAKTIVASI DAN BATUBARA TERHADAP PEMBENTUKAN *FOAM GLASS CERAMIC* BERBASIS BASALT *SCORIA* MENGGUNAKAN METODE *SINTERING* DAN *QUENCHING* PADA SUHU 900 °C DAN 1000 °C

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Penelitian pengaruh variasi komposisi $CaCO_3^+$ dan batubara terhadap pembentukan *foam glass ceramic* berbasis basalt *scoria* menggunakan metode *sintering* dan *quenching* pada suhu 900 °C dan 1000 °C. Variasi komposisi yang digunakan sebanyak (95:5), (90:10) dan (85:15). Hasil uji fisis sampel menghasilkan nilai densitas dan porositas terbaik yaitu sebanyak 0,84 g/cm^3 dan 20,29%. Hasil ini di dukung oleh hasil karakterisasi sampel menggunakan X-RF, X-RD dan SEM. Persentase penyusun SiO_2 sebanyak 34,258%, Fe_2O_3 sebanyak 23,507% dan CaO sebanyak 22,398%, kristal yang terbentuk *quartz, olivine* dan *anorthite*, persentase ukuran pori berkisar antara $0 < x \leq 1$ mm sebanyak 91,48%.

Kata Kunci: basalt *scoria*, batubara, $CaCO_3^+$, densitas, *foam glass ceramic*, porositas, *quenching, sintering*, SEM, X-RD, X-RF.

ABSTRACT

EFFECT OF VARIATIONS OF ACTIVATED $CACO_3$ AND COAL COMPOSITION ON THE FORMATION OF FOAM GLASS CERAMIC BASED ON BASALT SCORIA USING SINTERING AND QUENCHING METHODS AT 900 °C AND 1000 °C

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Research on the effect of variations in the composition of $CaCO_3^+$ and coal on the formation of foam glass ceramics based on basalt scoria using sintering and quenching methods at temperatures of 900 °C and 1000 °C. Variations of the composition used are (95:5), (90:10), and (85:15). The results of the physical test of the sample produced the best density and porosity values, which were 0.84 g/cm^3 and 20.29%, respectively. This result is supported by the sample characterization results using X-RF, X-RD, and SEM. The composition percentages of SiO_2 are 34.258%, Fe_2O_3 is 23.507%, and CaO is 22.398%. The crystals formed are quartz, olivine, and anorthite, and the percentage of pore size ranges between $0 < x \leq 1$ mm and as much as 91.48%.

Keywords: basalt scoria, coal, $CaCO_3^+$, density, foam glass ceramic, porosity, quenching, sintering, SEM, X-RD, X-RF.