FORMATION OF VOID IN BFS/$CACO_3$ DIFFUSION COUPLE

By Ismail, AAM (Ismail, Ahmad Abdul Mun'im) ; Rozhan, AN (Rozhan, Alya Naili) ; Rosdin, MRH (Rosdin, Muhammad Rafiq Haikal) ; Purwanto, H (Purwanto, Hadi) ; Hamid, AA (Hamid, Abd Malek Abdul) ; Ani, MH (Ani, M. H.)

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Abstract This study investigates void formation in the blast furnace slag (BFS) and calcium carbonate (CACO(3)) diffusion couple, which is critical for understanding the interdiffusion process in cement production. The experimental analysis involved high-temperature diffusion experiments, focusing on the volume fraction of void at the BFS/CACO(3) interface, the activation energy of void formation, and the I-V measurement of void formation at the BFS/CACO(3) interface. Void measurements revealed a 25% increase after exposure to the specified temperature, while the activation energy for void formation was calculated to be-41.48 kJ/mol. I-V measurements revealed ionic diffusion as the dominant mechanism for void formation, with an

average decomposition rate of 1.4598 x 10(-12) m(2)s(-1). These findings provide valuable insights for utilizing BFS in cement production.

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Addresses

[1] Int Islamic Univ Malaysia, Dept Mfg & Mat, Kulliyyah Engn, Jalan Gombak, Kuala Lumpur 53100, Malaysia

[2] Univ Int Semen Indonesia, Dept Engn Management, Kompleks PT Semen Indonesia Persero Tbk Jl Vet, Gresik Jawa Timur 61122, Indonesia

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