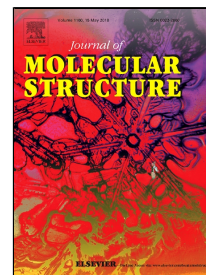


# Accepted Manuscript

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PII: S0022-2860(18)30268-0  
DOI: 10.1016/j.molstruc.2018.02.114  
Reference: MOLSTR 24936  
To appear in: *Journal of Molecular Structure*  
Received Date: 12 September 2017  
Revised Date: 27 February 2018  
Accepted Date: 28 February 2018

Please cite this article as: Soner Top, Hüseyin Vapur, Effect of Basaltic Pumice Aggregate Addition on the Material Properties of Fly Ash Based Lightweight Geopolymer Concrete, *Journal of Molecular Structure* (2018), doi: 10.1016/j.molstruc.2018.02.114

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## Effect of Basaltic Pumice Aggregate Addition on the Material Properties of Fly Ash Based Lightweight Geopolymer Concrete

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### Abstract

In this study, fly ash (FA) based geopolymer (GP) concretes were produced by using a mixture of basaltic pumice (BP) aggregates and a fly ash (Class F) for lightweight concrete production. ANOVA Yates' test technique was applied to find out the effective curing parameters. BP aggregates were ground four different fractions of particle sizes as -12+4 mm, -4+0.425 mm, -0.425+0 mm and the one containing the size distribution of Turkish Standart 802. Also, effects of the curing time in the oven were investigated. The uniaxial compressive strength (UCS) (20-55 MPa), the point load strength (4-14 kN), the water absorption (1.05%-17%), the Mohs hardness (5.5-3) and the sonic speed values (4.12-2.72 km/sn) were measured. Stress-strain curves were graphed. The density of the concrete ranged from 1700 kg/m<sup>3</sup> to 1792 kg/m<sup>3</sup> which confirm the lightweight concretes.

**Keywords:** Geopolymer, Basaltic pumice, Fly ash, Lightweight concrete, Statistical analysis.

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