

## عنوان مقاله:

Lightweight geopolimer properties

## محل انتشار:

اولین کنفرانس و نمایشگاه بین المللی صنعت سیمان، انرژی و محیط زیست (سال: 1391)

تعداد صفحات اصل مقاله: 9

## نویسندگان:

Gholamreza Khalaj - *Department of Materials Science and Engineering, Saveh Branch, Islamic Azad University, Saveh, Iran*

Ali Nazari - *Department of Materials Science and Engineering, Saveh Branch, Islamic Azad University, Saveh, Iran*

## خلاصه مقاله:

In the present work, compressive strength of lightweight inorganic polymers (geopolymers) produced by fine fly ash and rice husk bark ash together with palm oil clinker (POC) aggregates has been investigated. Different specimens made from a mixture of fine fly ash and rice husk bark ash with and without POC were subjected to compressive strength tests at 2, 7 and 28 days of curing. The specimens were oven cured for 36 h at 80 oC and then cured at room temperature until 2, 7 and 28 days. Addition of POC to the geopolymetric mixtures caused reduced strength at all age of curing. However a considerable increase in strength to weight ratio was acquired for The geopolimer is an alkali-activated aluminosilicate material with a much smaller CO<sub>2</sub> footprint than traditional Portland cement products. It has excellent durability and may exhibit many other useful properties such as high compressive strength, excellent resistance to water permeability, and good thermal stability. Solid waste and by-products containing silica and/or alumina can, therefore, be used as source materials for making geopolimer. It is environmentally friendly and needs moderate energy to produce. It also provides a major and cost-effective solution to many problems where hazardous residue has to be treated and stored under critical environmental conditions [1]. The compressive strength of an inorganic polymer depends on both the ratio of Si/Al and the types of the utilized raw material. the specimen with a high content of fine POC particles at 28 days of curing. Thermogravimetric analysis and Fourier transform infrared spectroscopy both also are in agreement with the obtained results from compressive strength tests. It was shown that increasing the POC content reduced the weight loss during thermogravimetric analysis and hence increases the heat stability.

## کلمات کلیدی:

Geopolimer; compressive strength; fly ash; rice husk bark ash; palm oil clinker; TGA; FT-IR

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/211505>

