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Engineering Challenges for Sustainable Future - Proceedings of the 3rd International Conference on Civil, offshore and Environmental Engineering, ICCOEE 2016

2016, Pages 527-530

3rd International Conference on Civil, offshore and Environmental Engineering, ICCOEE 2016; Kuala Lumpur, Malaysia; 15 August 2016 through 17 August 2016; Code 180169

**Milling time influence of ultrafine treated rice husk ash to pozzolanic reactivity in portlandite** (Conference Paper)Nuruddin, M.F.<sup>a</sup>, Saad, S.A.<sup>a</sup>, Shafiq, N.<sup>a</sup>, Ali, M.<sup>b</sup><sup>a</sup> Department of Civil and Environmental Engineering, Universiti Teknologi PETRONAS, Seri Iskandar, Perak, Malaysia<sup>b</sup> Material and Manufacturing Engineering Department, Kuliyah of Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia

## Abstract

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An investigation of **pozzolanic reactivity** of ultrafine treated rice husk ash (UFRHA) was evaluated using electrical conductivity measurement. This paper is aimed to identify the effect of grinding duration via high speed milling process to the **pozzolanic reactivity** level. This **pozzolanic reactivity** assessment was completed by incorporating UFRHA powder samples prepared at several **milling** duration in saturated **portlandite** solution at 40°C. Structure of these mesoporous substances after grinding process were captured using Field Emission Scanning Electron Microscopy (FESEM) accordingly. Based on the findings, experimental results analysis reveal that UFRHA ground at 15 min has highest **pozzolanic reactivity** level among all specimens. Hence, short period of grinding is sufficient to attain huge amount of specific surface area (SSA) by using high speed **milling** process. Excessive grinding aid i.e. 60 min produced lower specific surface area hence lower **pozzolanic reactivity** level. Larger amount of specific surface area leads towards vigorous and higher **pozzolanic reactivity**. © 2016 Taylor & Francis Group, London.

## Indexed keywords

**Engineering controlled terms:** Environmental engineering; Field emission microscopes; Grinding (machining); Scanning electron microscopy; Specific surface area  
Electrical conductivity measurements; Field emission scanning electron microscopy; High speed milling; Powder samples; **Pozzolanic reactivity**; **Rice husk ash**;  
Short periods; Specific surface area (SSA)

**Engineering main heading:** Milling (machining)

ISBN: 978-113802978-1 Source Type: Conference Proceeding Original language: English

Document Type: Conference Paper

Volume Editors: Zawawi N.A.W.A. Sponsors: Publisher: CRC Press/Balkema

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