

عنوان مقاله:

Effect of Crushing Process Parameters on Quality of Fly Ash Aggregates Produced After Crushing High Strength Fly Ash Blocks: A Laboratory Investigation

محل انتشار:

ماهنامه بین المللی مهندسی، دوره 37، شماره 3 (سال: 1403)

تعداد صفحات اصل مقاله: 9

نویسندگان:

S. Singh - *Department of Civil Engineering, S. V. National Institute of Technology, Surat, Gujarat, India*

S. Patel - *Department of Civil Engineering, S. V. National Institute of Technology, Surat, Gujarat, India*

خلاصه مقاله:

The demand for aggregates for civil engineering construction is high in the market. The broad adoption of fly ash for producing fly ash aggregate is the best sustainable solution to fulfill aggregate demand and utilization of unused fly ash. Crushing is an essential step for producing angular-shaped aggregate. In this paper, an experimental study using a laboratory-scaled impact crusher was carried out to investigate the effect of crushing process parameters (feed block size, crusher speed and outlet sieve size) on the quality (particle size distribution, flakiness-elongation index and mechanical properties) of angular-shaped fly ash aggregates produced after crushing high-strength fly ash blocks. Particle size distribution and flakiness-elongation index were found to be changed with crushing parameters. Higher crushing speed resulted in small-size fly ash aggregates. Better particle size distribution of crushed fly ash aggregate was produced using a 60 mm outlet sieve compared to a 30 mm one. Well-graded fly ash aggregates with good particle shape (less flaky and less elongated) for the subbase layer of the road were obtained after crushing fly ash blocks of one-third feed size in a laboratory-scaled impact crusher at a crushing speed of 527 rpm and an outlet sieve of 60 mm. Mechanical properties (impact, crushing and abrasion values) of the fly ash aggregate were not much affected by crushing process parameters. The findings of this study will help in optimizing the crushing operation of the industrial impact crusher to produce high-quality angular-shaped fly ash aggregate on a large scale.

کلمات کلیدی:

Fly ash blocks, lightweight aggregate, Particle Shape, particle size, Crusher, Pavement

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1905862>

