

Development of Coarse and Fine Aggregates Using Fly Ash and Geopolymer

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Abstract: *Infrastructure industry is still dominant in developing countries. These activities requires a large number of aggregates. To make cement concrete and asphalt concrete, it requires 60% to 75% of aggregate in total volume of the mixture. This high volume of aggregates may cause reduction on availability of natural aggregate. Another problem is that not all area in Indonesia has the ability to provide adequate aggregates so that it can support the infrastructure development, especially in remote areas. The aggregate mobilization may face disruption. This research attempts to present an idea of creating an artificial aggregate. The artificial aggregate is made of power plant waste that is mixed with alkali silica, named as fly ash geopolymer. Previous study indicates that the use of fly ash geopolymer as filler replacement in asphalt concrete mixture, is able to double the stability of Marshall test. This experiment serves a role to design an artificial aggregate.*

Keywords: Artificial Aggregate, Fly Ash Geopolymer, Asphalt Mix Materials

REFERENCES

- [1]. F. Debieb and S. Kenai, "The use of coarse and fine crushed bricks as aggregate in concrete," *Constr. Build. Mater.*, 2008.
- [2]. P. Priyadharshini, G. S. Mohanganeshanda, and Santhi, "A Review on Artificial Aggregates," *Int. J. Earth Sci. Eng.*, vol. 5, no. 301, pp. 540–546, 2012.
- [3]. P. B. Cachim, "Mechanical properties of brick aggregate concrete," *Constr. Build. Mater.*, 2009.