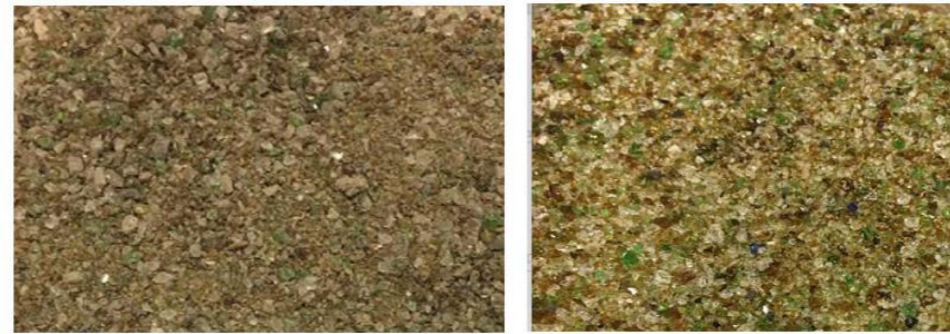
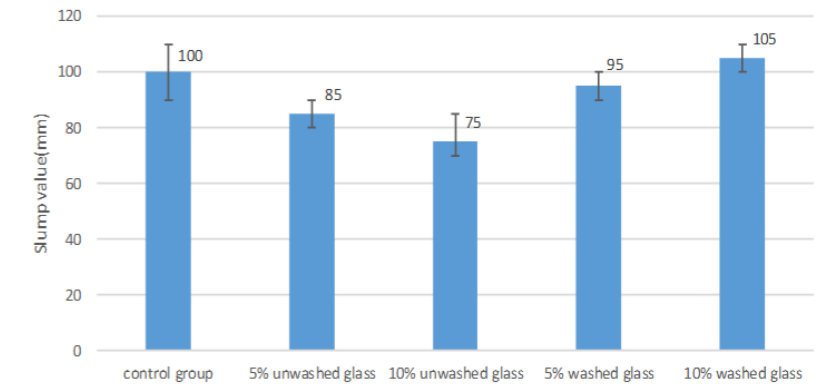
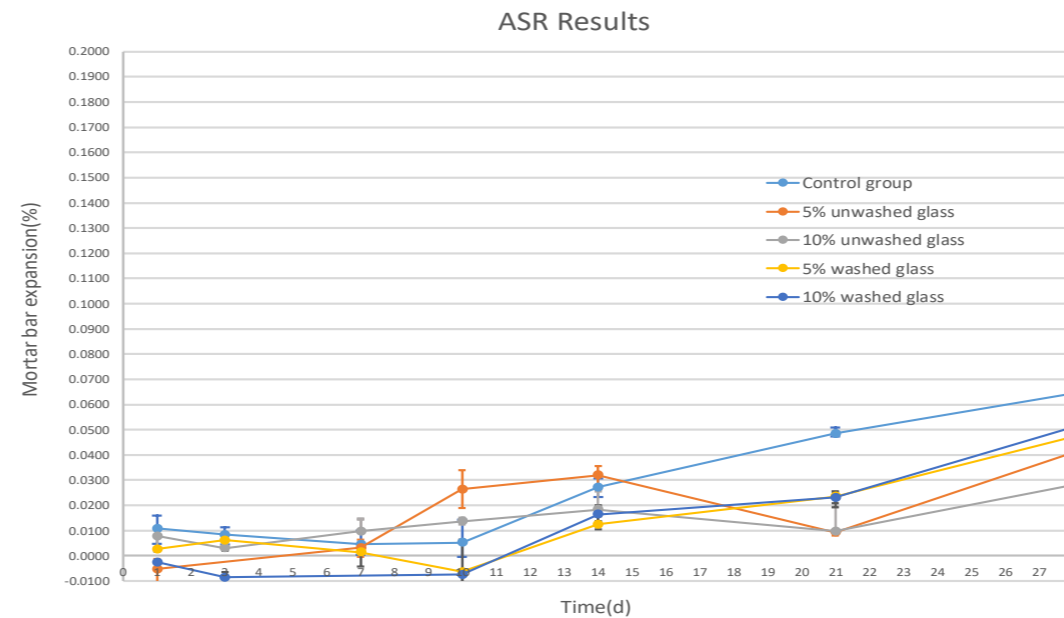


Utilization of Waste Glass Fines (WGF) as Natural Sand Replacement in Concrete

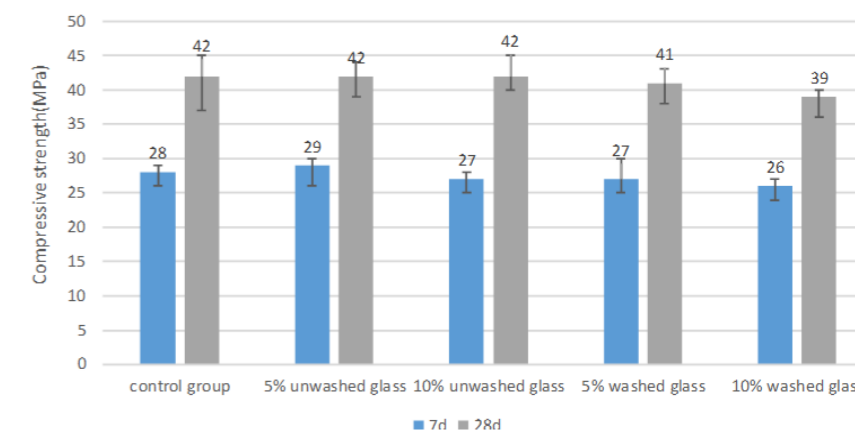
- The management of recycling waste glass has always been an issue all over the world. Huge quantity of waste glass has been stockpiled in landfills which is a waste of land resource.
- The concrete industry has been facing with a series of challenges, one of which is the shortage of natural sand.
- The utilization of waste glass fines as sand replacement in concrete can be considered as one of the most attractive options, since waste glass fines have similar physical and chemical properties as natural sand.
- Washing can take away most of the harmful contaminants in waste glass that should be avoided in concrete. However, washing is not always economical for full scale production in industry.
- One of the research objectives is to look at the effects of contamination in waste glass fines to see if the washing process is necessary, and also to look at the behavior of concrete with the inclusion of waste



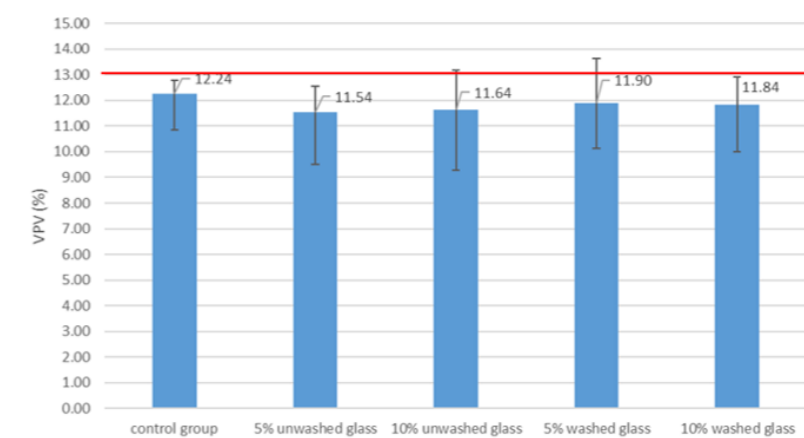
Appearance of waste glass fines before & after washing



(Slump value for five studied groups)



(Compressive strength for five studied groups)



(AVPV for five studied groups)

- Replacing sand by unwashed waste glass fines decreases the slump value, while the slump value still comparable to the control group when sand is replaced by washed waste glass fines.
- There is minor difference in terms of compressive strength and apparent volume of permeable
- The ASR expansion is suppressed due to the use of fly ash.



Stockpiles of waste glass in landfills

More Information

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