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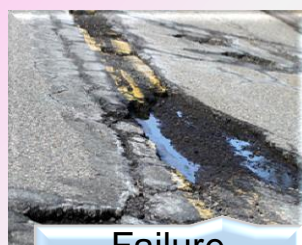
INTRODUCTION

Eggshells are widely used in our country and usually thrown away as waste by consumers. Disposal of the waste eggshell is a serious environmental concern because it needs a lot of landfills and the eggshell waste will release the unpleasant smell. As a result, recycling eggshell into a useful product may provide potential benefits for the food manufacturers and construction industry. Therefore, the potential of eggshell as alternative modified binder was presented in this study.

BENEFITS

- ❖ Increase the road pavement life by reducing the failure on the road.
- ❖ Reduce cost of road construction.
- ❖ Keep environment safe by reduces the waste generated for disposed of in the landfill.

PROBLEM STATEMENT



Failure Pavement



Weather



Eggshell Waste

COMMERCIALISATION POTENTIAL

- ❖ Environmentally safe with no growth of bacteria which can cause disease and allergies.
- ❖ Cost effective and easy available.

OBJECTIVES

- To study the potential of eggshell as modified binder in road construction.
- To investigate the effects of different percentage of eggshell into the bituminous.
- To determine the optimum percentage of eggshell as alternative bitumen.

NOVELTY

- Improve the performance of the road construction.
- Reduce the cost of road construction.
- Minimize the landfilling and reduce the environmental pollution issue.

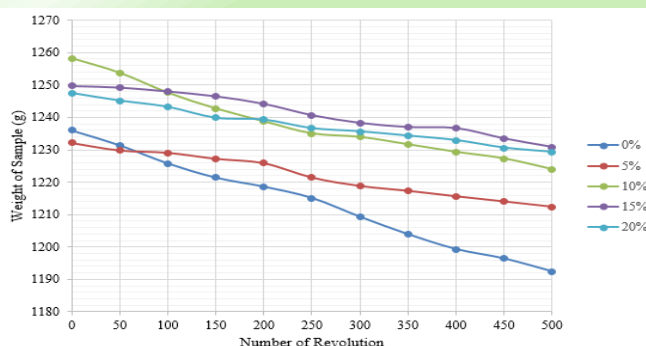
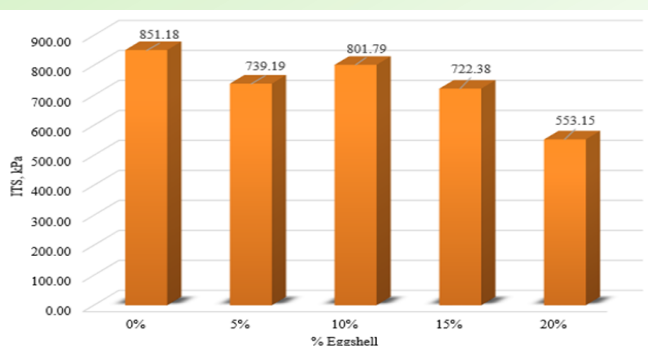
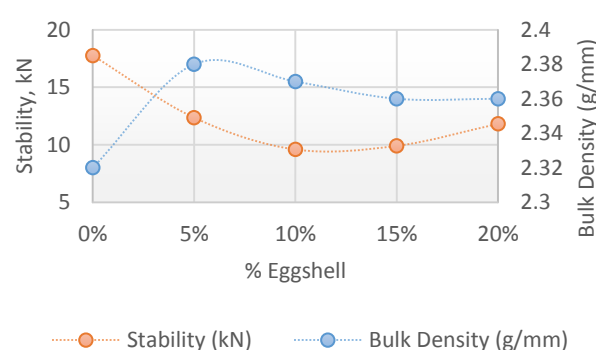
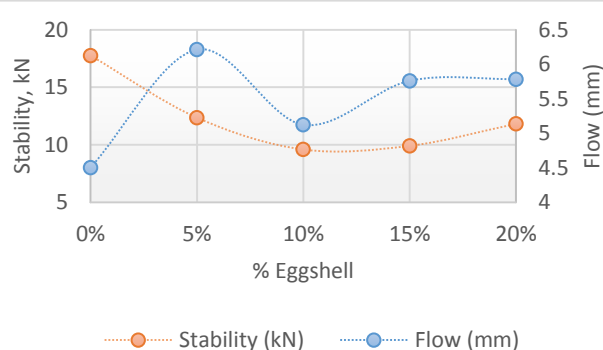
MATERIALS



METHODS



RESULTS & DISCUSSIONS



CONCLUSION

- ❖ The modified of bitumen with eggshell has shows the improvement of road construction industry.
- ❖ The adding of eggshell mainly influenced the characteristics of bituminous and produce better performance of road pavements.
- ❖ The best percentage of eggshell was 20% (based on physical and mechanical performance).

PUBLICATIONS



Properties of mortar with fine eggshell powder as partial cement replacement
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Key Engineering Materials, ISSN: 1662-9795, Vol. 870, pp 54-68, Submitted: 2020-08-18, Revised: 2020-10-16, © 2021 Trans Tech Publications Ltd, Switzerland, Accepted: 2020-11-01, Online: 2021-09-11

Properties of Concrete with Eggshell Powder and Tyre Rubber Crumb
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Keywords: eggshell; tyre rubber; concrete; properties.

COST STUDY/ESTIMATION

The cost of processing eggshell waste	RM1.00/kg
The optimum percentage of eggshell used	20%
Consider 1 km length road of width 3.75 m. it uses aggregate approx. 21300 kg.	New work
The cost of aggregate	RM2.50/kg
Aggregate required for work (approx.)	21,300 kg/km
Cost of road in new work	RM53,250/km
Cost of road saved (20% eggshell waste used)	RM1,186/km

COLLABORATION PARTNER

