

ECO-CEMENT: SAVE THE MOTHER NATURE



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PRODUCT BACKGROUND

- Environmental pollution caused by disposal of solid wastes from fisheries industries along with increasing use of limestone for cement manufacturing in construction industry has led to the development of **ECO-CEMENT**.
- **ECO-CEMENT** is an **environmental friendly cement** formed by cockle shell powder as mixing ingredient.
- **ECO-CEMENT** give **positive impact to the environment** by **reducing cockle shell dumping** and **reducing usage of limestone cement** in construction sector.
- Adding powder cockle shell as partial cement replacement reduces cement use leading towards **reduction of greenhouse gas released by cement industry**.



Cement industry

- CO₂ and hazardous gases emission
- Causes air, water and noise pollution



Over-mining limestone

- Deforestation
- Soil degradation
- Loss of habitat
- Ecosystem disruption



Cockle shell waste dumping

- Environmental pollution
- Increasing use of landfill area
- Undesirable odour disturbing comfort of community

BENEFIT



NOVELTY

- ❖ Combination of raw natural cockle shell which is rich with Calcium Oxide as partial cement replacement saves the use of the limestone from green hill in cement industry for the **FIRST** time in the world.

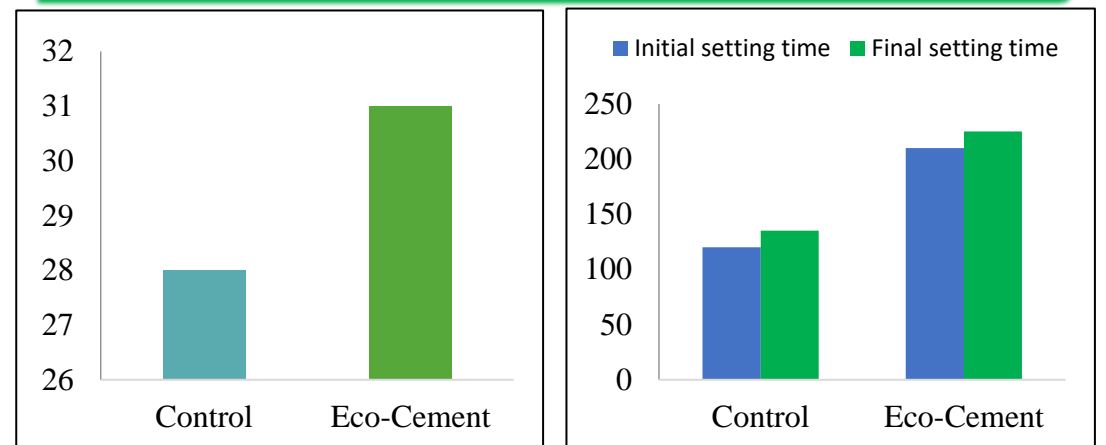
PUBLICATIONS

- ❖ "Exploratory study on the use of crushed cockle shell as partial sand replacement in concrete" *International Journal of Research in Engineering and Science (IJRES)*, 4, 67-71 (**PEER REVIEWED**)
- ❖ "Properties of Cement Sand Brick Containing Finely Crushed Cockle Shell as Partial Fine Aggregates Replacement" *Materials Today Proceeding* 4, 132-137 (**SCOPUS PROCEEDING**)
- ❖ "Setting Time and Compressive Strength of Mortar Containing Cockle Shell Powder as Partial Cement Replacement" (*Presented in NCWE 2020, Accepted for publication*) (**SCOPUS PROCEEDING**)
- ❖ "Environmental Impact of Cement Production and Solutions: A Review" (*Accepted for publication in Materials Today Proceeding*) (**SCOPUS PROCEEDING**)

Methodology : CHANGE WASTE TO CEMENT



PRODUCT FEATURES



Higher compressive strength

Longer setting time

Chemical composition (%)				
Element	CaO	P ₂ O ₅	TiO ₂	Fe ₂ O ₃
Limestone	53.08	0.09	0.02	0.26
Cockle shell	99.44	0.1317	0.0251	0.0733

AWARD

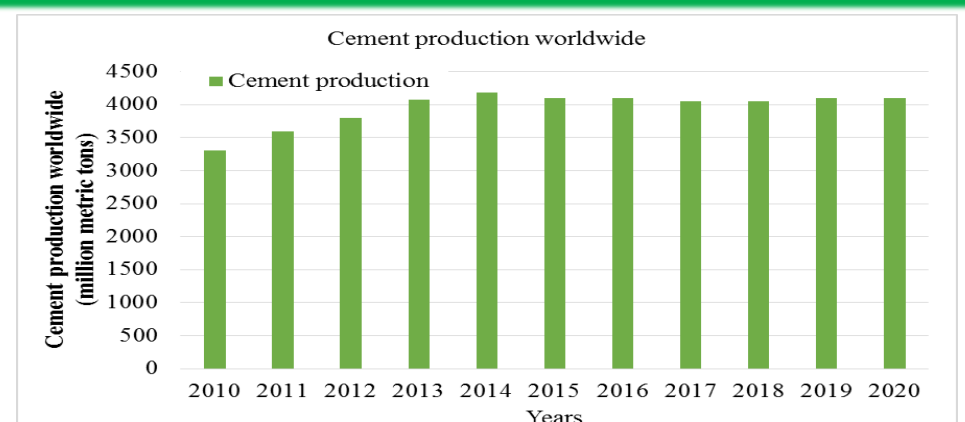
- ❖ FRGS/1/2019/TK06/UMP/02/3
- ❖ PGRS 200388

PRICE

NORMAL CONCRETE (AVERAGE)	RM 25.00
ECO-CEMENT	RM 15.00

SAVE 40%

MARKETABILITY



(Source: Statista)

COMMERCIALIZATION

- ❖ Concrete producer
- ❖ Cement brick manufacturer



COLLABORATOR



PERUNDING TEKNIK PADU SDN. BHD.