

ECO-COALCRETE: WASTE-LESS EARTH, LIVELY LIFE



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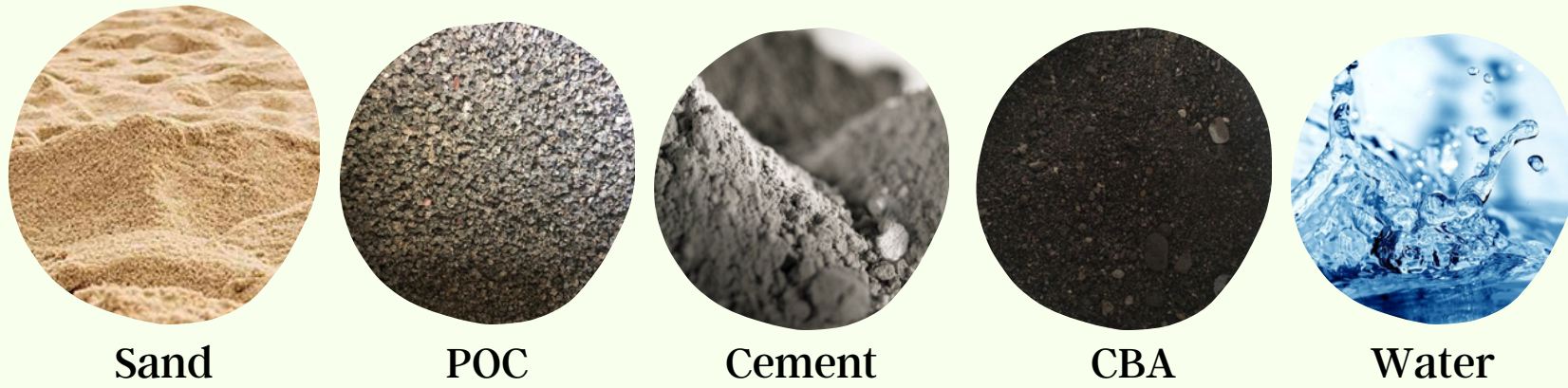
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PRODUCT BACKGROUND

- The **palm oil industry** and **coal industry** produce a large number of wastes which disposed of and created environmental pollution.
- Global demand for natural aggregates for the production of concrete is projected to grow by an average of 7.7% per year to reach 66.2 billion metric tons by 2022 (Kuhar, 2014).
- Using coal bottom ash (CBA) **as partial sand replacement** and palm oil clinker (POC) **as granite full replacement** in ECO-COALCRETE would reduce the use of natural resources.
- ECO-COALCRETE** give a **beneficial effect** on the environment by lessening the quantity of CBA and POC thrown on landfill sites.
- ECO-COALCRETE** which contains lesser sand and no granite as compared to plain concrete is **acceptable for structure**.



MIXING INGREDIENTS



NOVELTY

- The utilization of CBA has made this product to be **lighter** than control.
- The combination of POC and CBA in concrete making **saves** the use of granite and sand in building industry production **FIRST** time.

PUBLICATIONS

- "Coal Bottom Ash as Sand Replacement in Concrete: A Review" **Construction and Building Materials**, 236, 117507 (ISI Q1 1.491)
- "Compressive Strength of Palm Oil Clinker Lightweight Aggregate Concrete Containing Coal Bottom Ash as Sand Replacement" **Materials Today: Proceedings** (in press Scopus).
- "Acid Resistance of Air Cured Lightweight Aggregate Concrete Containing Coal Bottom Ash" **National Conference on Wind and Earthquake Engineering**, 628-2021
- "The Use of Palm Oil Clinker as a Sustainable Construction Material: A Review." **Cement and Concrete Composites**, 106: 103447

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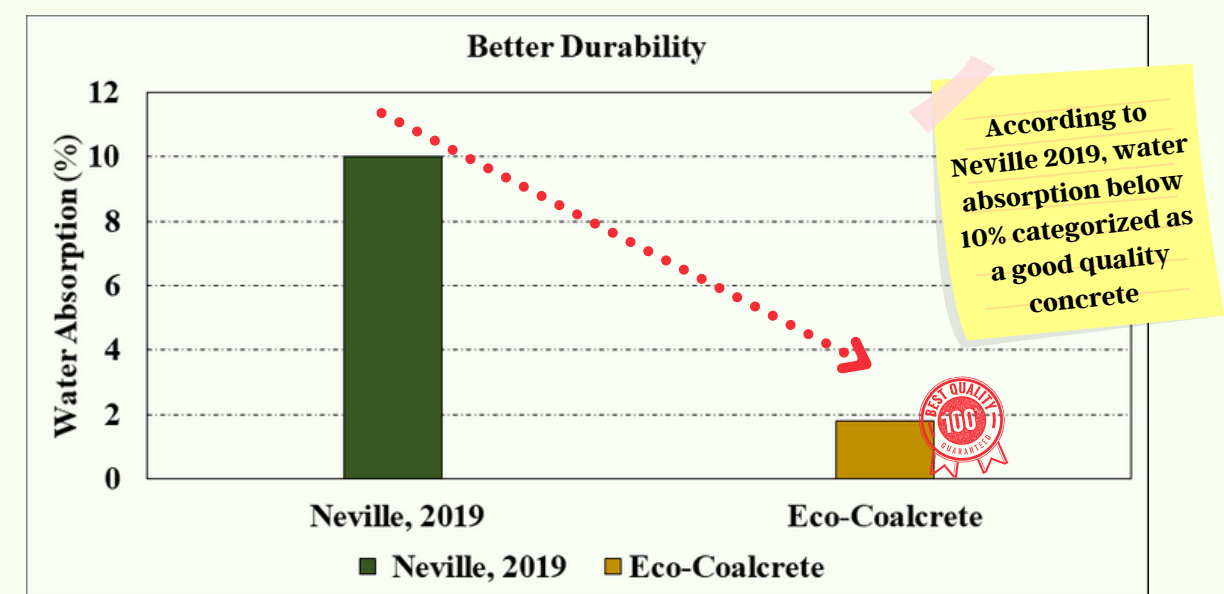
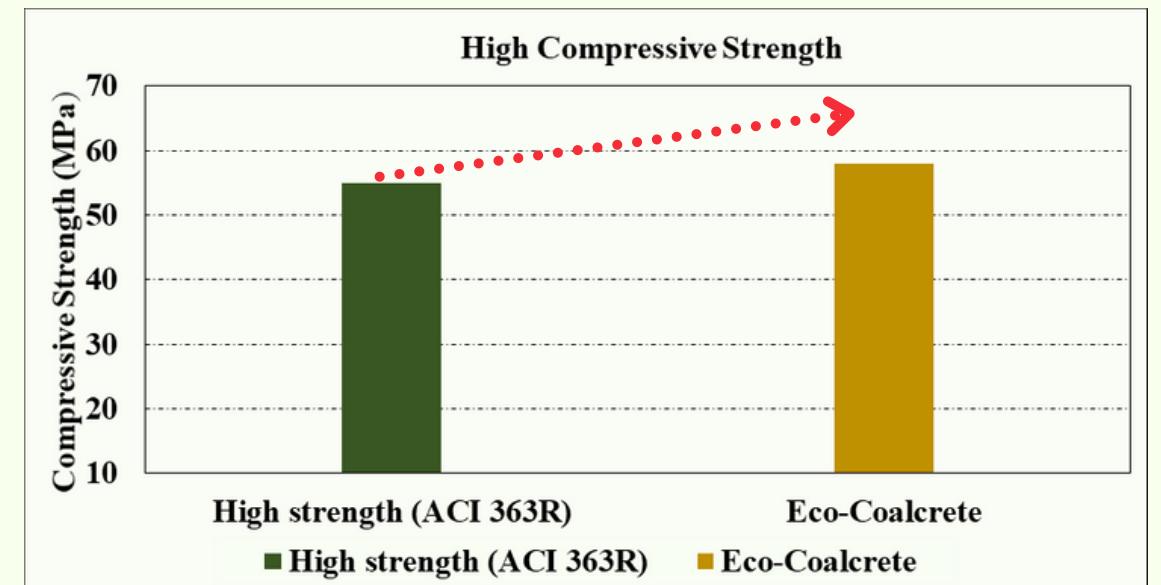
- RDU 1901173
- FRGS/1/2019/TK06UMP/02/3

COLLABORATOR



Kejuruteraan MFP Sdn Bhd

PRODUCT FEATURES



BENEFITS

- Environmental friendly when waste by-product is used for lightweight aggregate
- Save building and construction cost
- Lighter and reduced the structure dead load
- Clean environment and healthier life



COMMERCIALIZATION

- Ready-mix concrete producer
- Local contractors and developers

MARKETABILITY

