KENCRETE:

GREEN MATERIALS TO BUILDING STRUCTURES

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PRODUCT BACKGROUND

- Oil palm industry is one of the biggest industries in Malaysia and produces considerable quantities of waste every year.
- Reusing the oil palm shell (OPS) waste as coarse aggregate in concrete contributes to an environmental friendly lightweight aggregate concrete (LWAC).
- LWAC tends to be more brittle than conventional concrete, however, adding natural fiber i.e. kenaf helps strengthen and improve the ductility of the OPS LWAC concrete.
- This makes KENcrete an attractive green material to be used in the construction industry.

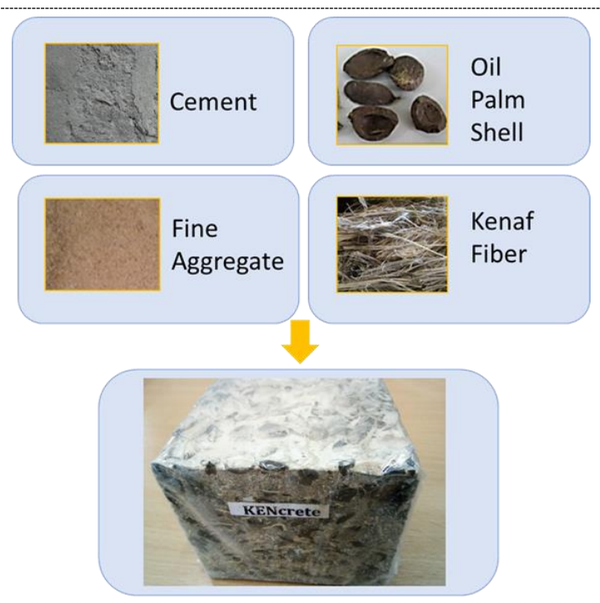
KENAF FIBER

- Kenaf fiber is extracted from bast fiber of the kenaf plant.
- It has a tensile strength between 300 to 900 MPa depending on its thickness and quality.
- Kenaf fiber reinforced concretes have a bright future due to its renewability and eco friendliness.

OIL PALM SHELL

- OPS are obtained after the oil extraction in the factory from the fresh fruit bunch.
- Every year, Malaysia produces over 4 million tonnes of OPS as agricultural waste.

PRODUCT FEATURES



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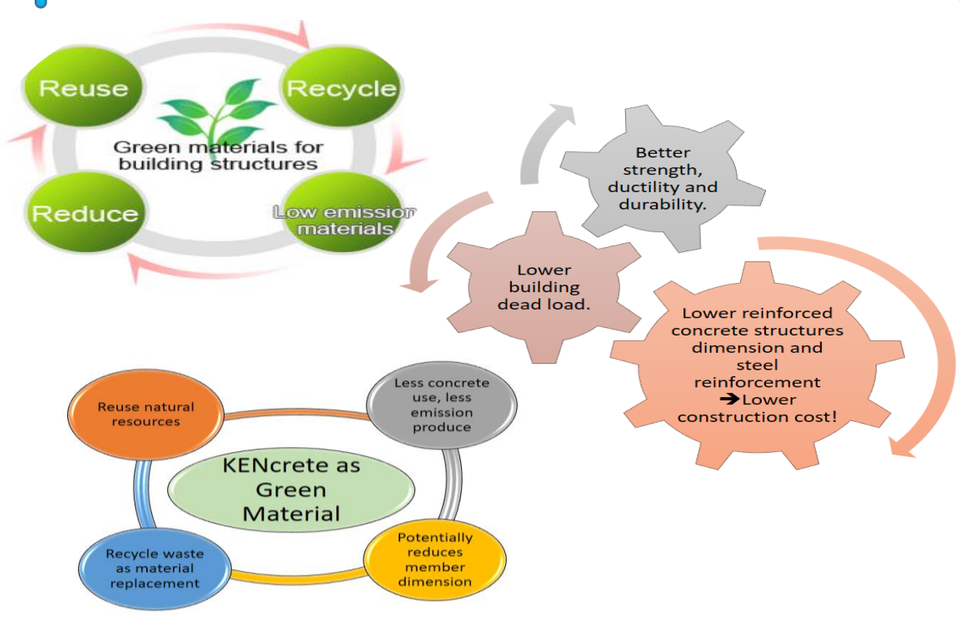


APPLICATIONS

- Ready Mix Concrete
- In Situ Concrete
- Pre Cast Concrete

PRODUCT BENEFITS

- Saves cost.
- Environmental friendly.
- Better strength and ductility.
- Lighter and economical design.
- Encourages implementation of green materials in construction.

PUBLICATIONS

- Azimi et al., 2014. Structural Behavior of Kenaf Fibre Reinforced Concrete Beams". International Journal Of Advances In Computer Science And Its Applications. (Scopus indexed)
- Syed Mohsin et al., 2014. Behaviour of Oil Palm Shell Reinforced Concrete Beams Added with Kenaf Fibres. Journal of Applied Mechanics and Materials. (Scopus indexed)
- Azimi et al., 2014. An Investigation on Engineering Properties of Composite Beam. Journal of Applied Sciences, Engineering and Technology. (Scopus indexed)
- Syed Mohsin et al., 2016. Sustainable Concrete. (Book Chapter)

AWARD

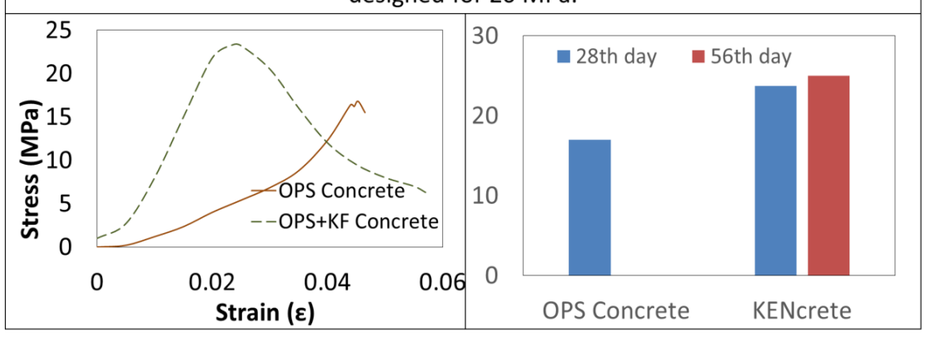
- GOLD MEDAL – CITREX 2018

PATENT

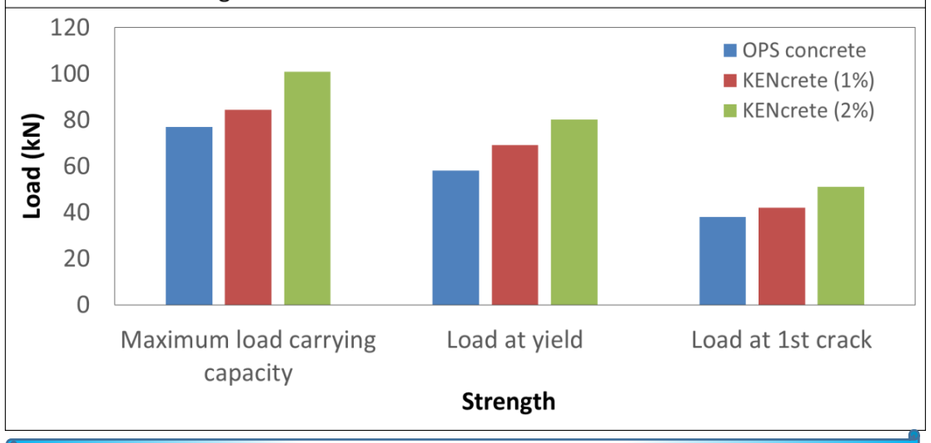
- REG NO: UI2016703317

PRODUCT CHARACTERISTIC

Stress – strain diagram and compressive strength results for KENcrete designed for 20 MPa.



The strength characteristic of the KENcrete versus OPS concrete.



KENAF FIBER ADVANTAGES

- Improves the strength and ductility of concrete.
- Higher loading is required to induce 1st crack and crack propagation is delayed.
- Changes the mode of failure from brittle to a more ductile manner.

INDUSTRY COLLABORATION

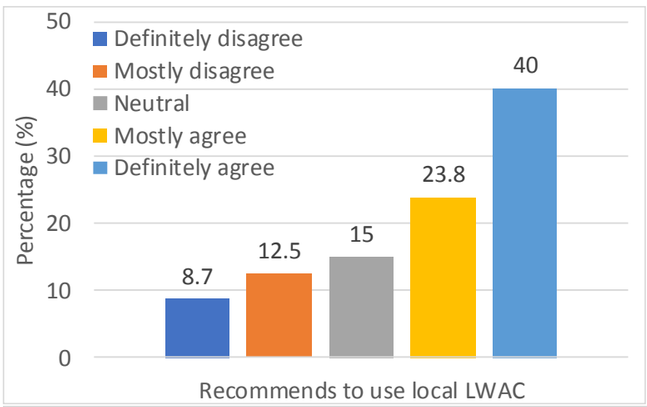
UMP

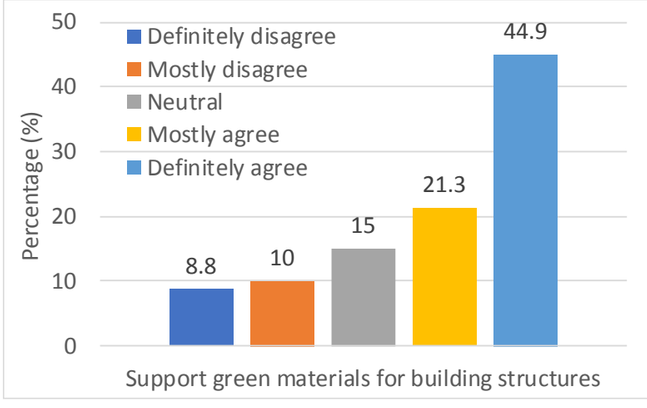
KEJURUTERAAN MFP ENTERPRISE JM 0730301-P CIVIL CONTRACTOR

POTENTIAL BUYER

- Ready mix concrete producers.
- Contractors.
- Developers.
- IBS manufacturers.

MARKET SURVEY





MARKET PRICE

Concrete type	Price per m^3
Conventional concrete	RM 250
KENcrete	RM 225

SAVE OUT ABOUT 10%