

CONCRETE WITH SUPERIOR PROPERTIES



INVENTION

An innovative method is used to prepare an advanced crumb rubber concrete. Fine particles which are usually available in the form of sand or crushed stones in the concrete mixture is replaced here with acid treated crumb rubber.

MARKET SIZE AND GROWTH

Increased demand from construction industry would assist tire recycling downstream market in reaching a valuation of US\$6 billion by 2027. Green building has become an increasingly essential part of concrete production industry with growing usage of discarded tires in production of rubberized concrete. The advantage of crumb rubber concrete is that it reduces the formation of cracks in constructions.

APPLICATIONS

- The processed crumb rubber can be used to repair foundations and rubberized asphalt pavements.
- It can also be utilized for both structural and non-structural applications requiring medium to low thermal insulation.
- The concrete can be utilized to create lighter, more energy-efficient structures.

ADVANTAGES

The crumb rubber concrete created in the lab achieved following properties:

- Compressive strength of more than 20 MPa
- Flexural strength 14% more than untreated crumb rubber concrete
- Thermal conductivity of 1.39 W/mK, (less than the untreated concrete i.e., 2.3 W/mK)

PROJECT STATUS

The crumb rubber concrete samples were prepared in lab. The compressive and flexural strength were tested according to ASTM C39 and ASTM C78 standards respectively. The thermal conductivity was measured according to ASTM C518 and ISO 8301.



Fig: Treated Crumb Rubber Concrete Samples

LOOKING FOR DEVELOPMENT PARTNER

We are looking for collaboration with a company to test the newly developed crumb rubber concrete in special industrial labs in accordance with applicable construction codes. The ultimate objective is to license the intellectual property (IP) for commercialization.

PATENT PROTECTION

A US Patent application, covering the composition and method to produce the treated crumb rubber concrete, shall be filed soon at a Patent office. The IP is owned by King Fahd University of Petroleum and Minerals (KFUPM).

ABOUT KFUPM

KFUPM was established in year 1963 and located in Dhahran city of Saudi Arabia. KFUPM currently ranks at 163 in QS World University Rankings 2021.

For further information please contact
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