

# ECONOMICAL METHOD OF PREPARING CARBON PARTICLES FOR MULTIPLE APPLICATIONS



## INVENTION

A process for producing carbon black using a combination of new methods with potential low cost of production. Waste Heavy oil fly ash is collected and pyrolyzed into an initial carbon material. This material is further ball milled to desired size, Micro and near Nano particle size.

## MARKET SIZE AND GROWTH

The carbon market value in 2020 is USD 17.21 billion. It is projected to grow by 6.1% in 2028. China is leading in terms of both market size and patent filling. Major companies in carbon black manufacturing are Orion, Birla Carbon, Cabot Corporation, Philips Carbon Black Ltd., Mitsubishi Chemical Corporation, OMSK Carbon Group, Continental Carbon Company, Tokai Carbon Co., Ltd., Chem China, Nippon Steel, BASF SE, and Sabic<sup>1</sup>.

## APPLICATIONS

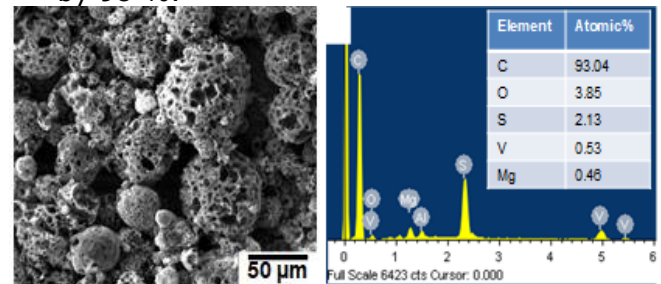
The carbon black can be used as material for automobile tires manufacture, anticorrosion coatings, electrochemical energy storage, and support for auto catalyst for hydrogen generation.

## ADVANTAGES

- Raw material, a waste product is readily and locally available.
- Lower processing temperature, 800°C compared to commercial methods.
- High conversion rate of 60%.
- Particle size close to nanometres (ranging from 152 to 415 nm).

## PROJECT STATUS

- Laboratory work such as synthesis and characterization of the material was performed. The particle size, structure and composition were determined.
- Upon reinforcing epoxy coating with the carbon particle, the corrosion rate dropped by 98 %.



FE-SEM Image Of Pyrolyzed Oil Ash

## LOOKING FOR DEVELOPMENT PARTNER

We are looking for a company who can partner with us to perform techno-economic analysis for scaling up the process. We are also looking for support to test the material in specific application mentioned earlier. Our ultimate objective is to license the intellectual property (IP) to such partner for commercialization.

## PATENT PROTECTION

A patent application 16812798 covering this method and apparatus was filed in US. The IP is owned by King Fahd University of Petroleum & Minerals (KFUPM).

## ABOUT KFUPM

KFUPM is located in Dhahran city of Saudi Arabia. KFUPM currently ranks at 163 in QS World University Rankings 2021. KFUPM's Innovation & Technology Transfer office strives for taking innovation from lab to market place.

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<sup>1</sup>Q. M. Insights, "Carbon Black Market by Process