A NEW COMPOSITE FOR REMOVAL OF METHYL RED DYE FROM INDUSTRIAL WASTEWATER

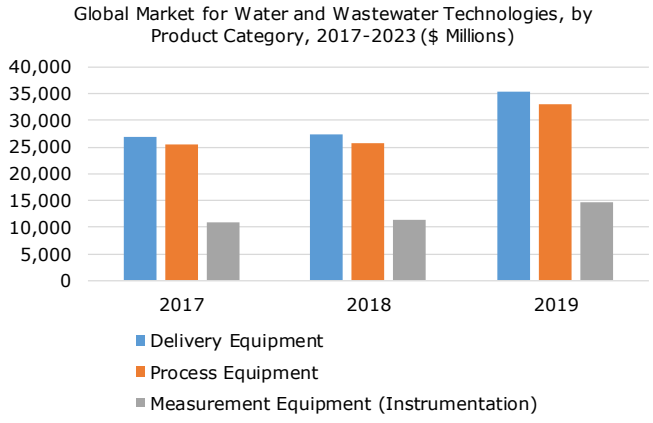
INVENTION

A new composite was synthesized from three materials, i.e., activated carbon from waste tires, iron oxide and polyethylenimine. The rubber-derived carbon was first modified by iron oxide and the obtained material was subjected to surface modification using polyethylenimine to produce the said composite (AC-Fe-PEI).

MARKET SIZE AND GROWTH

According to the report on *"Water and Wastewater Treatment Technologies: Global Markets"* by BCC Research (2018), the global water and wastewater treatment technologies market is anticipated to grow from $64.4 billion in 2018 to $83.0 billion by 2023 with a CAGR of 5.2% during the forecast period.

The market size and growth forecast of these three segments is shown in the following figure.



APPLICATION

Treatment of Industrial wastewater.

ADVANTAGES

- Reduces environmental waste since the invention uses waste rubber tires to produce the composite material.
- Good removal efficiency for methyl red from industrial wastewater.

PROJECT STATUS

A packed-bed column was designed using the material and tested in lab at KFUPM to evaluate the composite's efficieny in removing methyl red dye from industrial wastewater. The experiment results indicated that the material was able to succesfully remove methy red in about two hours duration.

LOOKING FOR DEVELOPMENT PARTNER

KFUPM is interested in seeking market feedback from industry, licensing the technology to a company to commercialize it and/or partner with a company for further development of this technology.

PATENT PROTECTION

The invention is protected through US patent application 16/519692 that was filed on Jul 23, 2019, and covers composition of material and the method of using the material for oil water separation. The IP is owned by King Fahd University of Petroleum & Minerals (KFUPM).

ABOUT KFUPM

KFUPM was established in year 1963 and is located in Dhahran city of Saudi Arabia. KFUPM currently ranks at 186 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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