(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :07/03/2024

(21) Application No.202441016267 A
(43) Publication Date : 22/03/2024

(54) Title of the invention : METHOD OF PRE-TREATMENT OF RUBBER WASTE FOR INCREASING OIL AND GAS PRODUCTION USING MICROWAVE-ASSISTED PYROLYSIS

(51) International classification :B09B3/00, B29B17/00, C10B53/07, C10G1/10, F23G5/027
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
ABSTRACT: Title: Method of Pre-Treatment of Rubber Waste for Increasing Oil and Gas Production Using Microwave-Assisted Pyrolysis The present disclosure proposes a method that performs physicochemical pre-treatment for increasing oil and gas yields from microwave-assisted pyrolysis of tire rubber waste. Initially, rubber is removed from used vehicles tires and cut into small pieces of rubber waste. Next, the small pieces of rubber waste is soaked in a solution for at least 48 hr to achieve an apparent effect, which causes its color turned dark black and further shrinkage, thereby obtaining a treated rubber waste composite. Finally, the treated rubber waste composite is dried for a time period, thereby obtaining a pre-treated rubber waste. In addition, the pre-treated rubber waste is heated to a decomposition temperature using a microwave-assisted pyrolysis for producing oil and gas. The proposed method reduces the reaction time by 75 % during the microwave-assisted pyrolysis process, thereby leading to quicker turnover of the pyrolysis reactor and improving production efficiency.

No. of Pages : 26 No. of Claims : 7