(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :10/05/2024

(21) Application No.202441037159 A
(43) Publication Date : 17/05/2024

(54) Title of the invention : EGGSHELL-DERIVED CATALYST PYROLYSIS PROCESS FOR CONVERTING WASTE PLASTICS INTO FUEL OIL

(51) International classification :C10G0001100000, C10G0001000000, C10B0053070000, F02B0003060000, C10G0001080000
(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 :
The present invention introduces a novel method for converting waste plastics into valuable fuel oil through pyrolysis technology using a catalyst synthesized from waste poultry eggshells. By subjecting waste plastics to controlled pyrolysis in the presence of the unique eggshell-derived catalyst, the process achieves a remarkable oil yield of 65 vol% while ensuring superior quality and suitability of the resulting fuel oil for diesel engine usage. The versatility of the eggshell catalyst extends beyond plastic pyrolysis, making it suitable for various pyrolysis processes such as tire pyrolysis and co-gasification. Additionally, the proportion of eggshell catalyst utilized can be adjusted based on the raw materials, offering flexibility in process optimization. Operating parameters including reactor pressure, temperature, and residence time are tailored to accommodate the eggshell catalyst, ensuring efficient and effective conversion of waste plastics into high-quality fuel oil.

No. of Pages : 21 No. of Claims : 5