

(54) Title of the invention : SINGLE-CHAMBER BIOFUEL REACTOR FOR BIOFUEL PRODUCTION FROM WASTE COOKING OIL

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(57) Abstract :  
ABSTRACT SINGLE-CHAMBER BIOFUEL REACTOR FOR BIOFUEL PRODUCTION FROM WASTE COOKING OIL The present invention relates to a single-chamber biofuel reactor designed for the efficient conversion of waste cooking oil into biofuel through a simplified transesterification process. The reactor integrates multiple stages of biofuel production—chemical reaction, separation, and purification—into a single chamber, significantly reducing operational complexity, equipment costs, and maintenance requirements. Key features include an efficient catalyst introduction system, integrated temperature and pressure regulation, and a built-in mechanism to separate biofuel from by-products such as glycerol. The invention offers a cost-effective, sustainable, and scalable solution for biofuel production, addressing waste management challenges while promoting renewable energy practices. Fig. 1

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