

**Department of Chemical Engineering, SoET, PDEU - Patents**

<b>Title of Investigation</b>	<b>Patent Type</b>	<b>Application Number</b>	<b>Status (Published/Granted)</b>	<b>Date of Publishing/Grant)</b>
Influence of process parameters through novel glass ZIF-62 mixed matrix membrane for oily waste water separation by using RSM technique	Process	202421051691 A	Published	31-1-2025
Novel ZIF-11/GO modified-PSF mixed matrix membranes for CO <sub>2</sub> capture in pure and mixed gas (CO <sub>2</sub> /CH <sub>4</sub> ) process	Process	202321037991 A	Published	15-12-2023
Development of CO <sub>2</sub> /CH <sub>4</sub> separation process using novel Zn-MOF-II@[BMIM]Br/PSF mixed matrix membranes prepared by solution casting method	Process	202421052351 A	Published	09-07-2024
High-performance Shockwave power reactor for various applications including biodiesel production	Product	202321038040	Published	15-12-2023
Esterification process of blended raw Karanja oil and Castor oil utilizing a Shockwave power reactor (SPR)	Process	202421012114	Published	13-09-2024
A novel biodiesel production process from acid oil using high speed homogenizer	Process	202421050904	Published	31-01-2025
Advanced Deep Eutectic solvent gel membranes for CO <sub>2</sub> separation	Process	202421090892	Published	06-06-2025
Green Solvent Blended Gel Membranes for CO <sub>2</sub> Separation	Process	202521038411	Published	05-12-2025

Shockwave Power reactor for biodiesel production	Design	376531-001	Granted	28-04-2023
Cavitation device for biodiesel production from non-edible oil	Design	432751-002	Granted	27-11-2024
CFD-Assisted Microbubble Reactor for Enhanced Ozonation in Industrial Water Treatment	Design	466611-001	Granted	25 Nov 2025
Handy Water Bottle with Fluoride Filter	Design Patent	342145-001	Granted	08-04-2021
Synthesis of Fe-Al-Zn mixed metal oxide adsorbent for defluoridation from ground water with process optimization	Process Patent	202221014113A	Granted	15-03-2022
Ionic Liquid Supported Membrane for Enhanced CO <sub>2</sub> Separation	Process Patent	202221029658A	Granted	18-11-2022
Production of ultra-low sulfur base oil using ultrasound assisted extractive/oxidative desulfurization process: Experimental investigation, optimization and validation	Process Patent	202221029657A	Granted	21-05-2022