

GOVERNMENT OF INDIA
MINISTRY OF CHEMICALS AND FERTILIZERS
DEPARTMENT OF CHEMICALS AND PETROCHEMICALS

RAJYA SABHA
STARRED QUESTION No. *240
ANSWERED ON 17.12.2024

CHEMICAL ENGINEERING RESEARCH CLUSTER IN TAMIL NADU

*240: SHRI R. GIRIRAJAN:

Will the Minister of CHEMICALS AND FERTILIZERS be pleased to state:

- (a) whether Government has any plans to establish chemical engineering research cluster in Tamil Nadu;
- (b) if so, the details thereof;
- (c) the important chemical engineering research projects undertaken by the Ministry through it's allied and subordinate offices; and
- (d) whether Government has initiated any special projects pertaining to chemical engineering research in Vellore Parliamentary constituency, if so, the details thereof and if not, the reasons therefor?

ANSWER

THE MINISTER FOR CHEMICALS & FERTILIZERS
(SHRI JAGAT PRAKASH NADDA)

(a) to (d): A Statement is laid on the Table of the House.

Statement referred to in reply to (a) to (d) in respect of Rajya Sabha Starred Question No. 240 for reply on 17th December, 2024, on “Chemical engineering research cluster in Tamil Nadu” asked by Shri R. Girirajan

- (a) and (b) The Department of Chemicals and Petrochemicals implements a Scheme for Setting up of Centres of Excellence (CoEs) under the New Scheme of Petrochemicals. Under this Scheme, the Department provides grant-in-aid to reputed government research institutes with the objective of improving the existing technology and research in the country and to promote development of new applications. The emphasis is on modernization and upgradation of existing manufacturing processes as well as improving the quality of products involving Chemicals and Petrochemicals. The broad areas of research include updating products for new uses, product design changes using chemicals and petrochemicals, improvements in production processes, development of biodegradable and bio-based chemicals, enhancing efficiency and productivity through the optimization of chemical processes, including the use of advanced reactors, separation techniques, and process control strategies. The Department has approved two Centres of Excellence (CoEs) in the State of Tamil Nadu. The CoE approved in 2011 at the Central Institute of Petrochemicals Engineering & Technology (CIPET), Chennai focused on Green Transport Network while the recently approved CoE at the Indian Institute of Technology (IIT), Madras is for research on development of Biodegradable Packaging Materials.
- (c) The important research projects undertaken in chemical engineering and allied fields by the Research & Development (R&D) wing of CIPET include:
- (i) Scalable Micro Porous Polymer Film as a Separator for Secondary Lithium Battery Applications;
 - (ii) Optimization of Process Parameters and Analysis of Polymeric Nanocomposites for Viscoelastic Applications;
 - (iii) Development of Corrosion Resistant and Anti-Fouling Based Smart Zeolite Coatings for Marine Vehicles;
 - (iv) Development of Next Generation Hybrid Solar Cells;
 - (v) Poly Electrolyte Membrane for Fuel Cell Applications;
 - (vi) Transparent Heat Reflecting (THR) Nano-Hybrid Coating for Automobile Window Glasses;
 - (vii) Tuning of In-Plane 3D Porous Efficient Electrodes for Micro-super capacitors;

- (vii) Hybrid 3D Architecture Electrodes for Smart and Flexible Supercapattery;
 - (viii) Development of novel, lightweight hybrid and green composites for the automotive sector;
 - (ix) Design and Development of Poly (vinyl alcohol co-styrene sulfonic acid) based functional membranes for fuel cell applications; and
 - (x) Fabrication and Design of Thermal Sensors assembled with in-house developed adhesive for Cryogenic long-range Temperature measurement.
- (d) For the purpose of setting up CoEs, the Department of Chemicals & Petrochemicals invites research proposals from various eminent institutes. The project proposals received from the institutes are evaluated based on relevance of the topic to the chemical and petrochemical sector, relevance to industry, depth of collaboration with the industry, measurable outcome with sustainable impact, differentiated research hypothesis, and potential for commercialization. So far, no CoE has been approved in the Vellore Parliamentary constituency.
