



Bharat Petroleum Unveils Groundbreaking Geocell Technology to Revolutionize Plastic Waste Management in Road Construction

New Delhi, July 14, 2025: Bharat Petroleum Corporation Limited (BPCL), a Fortune Global 500 company, through its Corporate Research & Development Centre, has unveiled a pioneering solution for one of the world's most pressing environmental challenges, plastic waste disposal. In collaboration with the Central Road Research Institute (CRRI), New Delhi, BPCL has developed an innovative technical textile product called Geocell, designed to repurpose end-of-life and mixed waste plastics for use in road infrastructure.

The launch marks a significant step forward in sustainable construction practices, building upon BPCL R&D's earlier success with the Waste Plastic Module, which has already consumed over 250 metric tonnes of plastic waste across various Indian states.

The Geocell technology, which addresses the complexities of unsegregated municipal waste, especially multi-layered plastics (MLP), has been successfully tested in plant trials conducted in partnership with TATA Projects. These trials demonstrated the technical and economic viability of using such plastics in infrastructure applications, particularly in road construction.

Taking a major leap from lab to field, India's first field trial using technical textiles made from end-of-life plastic was inaugurated on July 11, 2025, at Loop No. 1 of the elevated section of the DND–Faridabad–KMP Expressway, New Delhi. The initiative is a joint effort by BPCL, CRRI, and the National Highways Authority of India (NHAI).

The inauguration was graced by Dr. Kalaiselvi, Director General, CSIR, along with Mr. Chandrasekhar N., Head of R&D, BPCL, and Dr. Manoranjan Parida, Director, CRRI, in the presence of senior BPCL scientists including Dr. Ravikumar, Dr. Chiranjeevi Thota, and Dr. Mahesh Kasture.

In his inaugural address, Mr. Chandrasekhar N. stated that, "This trial section, utilizing end-of-life waste plastic, is a collaborative effort between BPCL and CRRI. Upon successful validation, this approach may lead to increased application of waste plastic in the future."

The field demonstration covers approximately 1,280 square meters, utilizing 20-25 tonnes of plastic waste in the form of both Modules and Geocells. Notably, the use of multi-layered plastic waste—currently not covered under existing Indian Roads Congress (IRC) specifications—could significantly enhance plastic utilization in future infrastructure projects.

This initiative aligns seamlessly with India's Swachh Bharat Abhiyaan and Net Zero goals. Beyond environmental benefits, the technology provides tangible improvements to pavement durability and performance, representing a win-win for both sustainability and infrastructure.

With this successful field deployment, BPCL continues to lead from the front in sustainable innovation and circular economy practices. The scalable application of such technologies could redefine plastic waste management in India and set new standards for the global infrastructure community.



About Bharat Petroleum Corporation Ltd. (BPCL):

Fortune Global 500 Company, Bharat Petroleum is the second largest Indian Oil Marketing Company and one of the integrated energy companies in India, engaged in refining of crude oil and marketing of petroleum products, with presence in the upstream and downstream sectors of the oil and gas industry. The company attained the coveted Maharatna status, joining the club of companies having greater operational & financial autonomy.

Bharat Petroleum's Refineries at Mumbai, Kochi and Bina have a combined refining capacity of around 35.3 MMTPA. Its marketing infrastructure includes a network of installations, depots, fuel stations, aviation service stations and LPG distributors. Its distribution network comprises over 23,500+ Fuel Stations, over 6,200+ LPG distributorships, 500+ Lubes distributorships, 80 POL storage locations, 54 LPG Bottling Plants, 79 Aviation Service Stations, 5 Lube blending plants and 5 cross-country pipelines.

Bharat Petroleum is integrating its strategy, investments, environmental and social ambitions to move towards a sustainable planet. The company has Electric vehicle charging stations at 6500+ Fuel Stations.

With a focus on sustainable solutions, the company is developing an ecosystem and a road-map to become a Net Zero Energy Company by 2040, in Scope 1 and Scope 2 emissions. Bharat Petroleum has been partnering communities by supporting several initiatives connected primarily in the areas of education, water conservation, skill development, health, community development, capacity building and employee volunteering. With 'Energising Lives' as its core purpose, Bharat Petroleum's vision is to be an admired global energy company leveraging talent, innovation & technology.

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