



Praj's technology breakthrough for producing "Bio-bitumen"

- Eco-friendly renewable material for road construction

Pune, May 18, 2021: Praj Industries India's most accomplished industrial biotech company has achieved yet another milestone by developing innovative technology to produce Bio-bitumen based on lignin. The Netherlands-based Circular Biobased Delta, one of Europe's premier consortia to promote bioeconomy, has approved Praj's Bio-bitumen samples processed from Purified Lignin, as a part of their flagship CHAPLIN program.

Lignin is one of the co-products resulting from the 2nd generation Ethanol plants, paper making and also from Compressed Bio-Gas plants.

Bitumen is a black viscous mixture of hydrocarbons produced by fractionation of crude oil and has wide applications in road construction and roofing as binder.

Praj has now developed a proprietary process (under patenting) to convert the crude lignin into Bio-bitumen which has potential to replace this fossil based bitumen and offer eco-friendly green bitumen. The binding and viscoelastic property of Bio-bitumen makes it useful for applications in asphalt.

Circular Biobased Delta (CBBB) facilitates cooperation between knowledge centers, public authorities and industry to grow usage of biomass as a raw material in the chemical, construction and packaging industries. Under its flagship program CHAPLIN, it aims at stimulating the development and commercialization of Bio-bitumen as binder for use in asphalt so as to improve the greening approach in road construction while reducing CO₂ intensity.

Praj had provided Bio-bitumen samples processed from Rice and Wheat Straw as feedstock in their 2G Biorefinery Demo plant in India to CBBB for testing and evaluation. After thorough evaluation and studies in their advanced laboratories, CBBB has approved Praj's Bio-bitumen sample for scale up in Asphalt on a Dutch test strip on the road.

Dr. Pramod Chaudhari, Founder Chairman of Praj said, *"We are delighted to receive certificate of approval from Circular Biobased Delta for Bio-bitumen samples produced by deploying our proprietary process technology. We understand that Praj is the first Asian company to have developed Bio-bitumen that has the potential to partially replace bitumen from fossil resources. Bio-bitumen is poised to play a significant role as road construction material while curbing CO₂ emissions and boosting Bioeconomy. This reaffirms our strong belief in innovation and technology leadership in the industrial biotech space globally."*



Speaking on this landmark development, Dr. Ir. Willem L. Sederel, Chairman of Circular Biobased Delta said, *“We are very positive about the results of Praj’s Bio-bitumen samples based on our lab trials. We have now requested Praj to provide larger quantity of samples for constructing a road strip for test in the Netherlands. We firmly believe increasing value for **lignin derived Bio-bitumen** will allow improving the biobased business and stimulate economic activities such as processing of agri residues & its applications, biorefineries, and Bio-bitumen.”*

Following successful testing of pilot road strip in the Netherlands, usage of Bio-bitumen as a green construction material will open up a new chapter of huge applications potential in bioeconomy.

About Praj Industries Limited:

Praj, India’s most accomplished industrial biotechnology company is driven by innovation, integration, and delivery capabilities. Over the past four decades, Praj has focused on the environment, energy, and Agri-process industry, with over 750 customer references spanning 75 countries across 5 continents. Bio-Mobility™ and Bio-Prism™ are the mainstays of Praj’s contribution to the global Bioeconomy. The Bio-Mobility platform offers technology solutions globally to produce renewable transportation fuel, thus ensuring sustainable decarbonization through circular bioeconomy. The company’s Bio-Prism™ portfolio comprises of technologies for production of renewable chemicals and materials solutions, promises sustainability, while reimagining nature.

Praj Matrix, the state-of-the-art R&D facility, forms the backbone for the company’s endeavours towards a clean energy-based Bioeconomy. Praj’s diverse portfolio comprises of Bio-energy solutions, Critical process equipment & skids, Breweries, Zero liquid discharge systems and High purity water systems. Led by an accomplished and caring leadership, Praj is a socially responsible corporate citizen. Praj is listed on the Bombay and National Stock Exchanges of India. For more information, visit www.praj.net

About Circular Biobased Delta:

Circular Biobased Delta is a Triple Helix organization in which companies, knowledge institutions and governments actively work together to seize the unique opportunities that the biobased economy offers. The foundation has a coordinating role in this network and its mission is to accelerate the transition towards a green economy with healthy economics.



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Note: *Some of the statements made in the release could be forward-looking in nature. Such forward-looking statements remain subject to risks and contingencies particularly concerning but not limited to governmental policies, economic developments and technological factors. This may cause actual performance to differ materially from that observed through the relevant forward-looking statement. Praj Industries will not in any way be responsible for action taken based on such forward-looking statements and undertakes no commitment to update these forward-looking statements publicly, to reflect changed realities*