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Doon University researchers develop composite material for Oil Spill Clean-up

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DEHRADUN, 9 Oct: Faculty members and the researchers of the Department of Chemistry, School of Physical Sciences, Doon University, have developed a cutting-edge material that could significantly improve efforts to clean up oil spills. The novel composite, made from the metal-organic framework (MOF) UiO-66 combined with polyurethane (PU) and Fe₃O₄ nanoparticles, efficiently separates oil from water. This hydrophobic, oil-absorbing material promises to be more effective and cost-efficient than existing solutions for environmental remediation.

The composite's design enables it to absorb oil and be reused after recovery, making it an



eco-friendly option for industries and governments managing oil spills. The team aims to scale up production after securing a patent, despite challenges such as pore clogging, which they are working to overcome. The new material holds immense potential for various applications, including

water purification and industrial oil separation processes.

Environmental assessments indicate that the material is eco-friendly, provided it is disposed of properly and does not create secondary waste. The composite's ability to absorb oil for recovery and reuse offers potential cost

savings for industries dealing with oil contamination. "This material shows immense promise in tackling oil spills," said one of the lead researchers. "Our tests have shown that it's not only effective but also economically viable, as it uses affordable components like polyurethane and Fe₃O₄."

The development highlights Doon University's commitment to addressing environmental challenges, opening new opportunities for research in oil-water separation technologies and broader applications like water purification and industrial oil separation processes.

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