Promethean Particles to Develop MOFs for CO2 Capture Project

2020-10-07

UK-based nanoparticle technology manufacturer Promethean Particles is developing Metal-Organic Frameworks (MOFs) for the CARMOF Project, a European endeavour to capture CO2 from industrial processes.

The company's research aims to reduce CO2 emissions by using post-combustion CO2 adsorption processes with MOFs or Carbon Nanotubes (CNTs). Nottingham-based Promethean Particles is one of 15 contributors from nine countries taking part in the CARMOF Project.

In a statement, Dr Selina Ambrose, technical manager at Promethean Particles, said: "The CARMOF Project is an incredibly exciting programme, which brings together thought-leaders and scientists to address the challenges posed by climate change. Last December, we hosted a meeting with project members at our Nottingham production site to discuss our efficient large-scale process of manufacturing MOFs for gas capture.

"Currently, power plants that capture CO2 use an old process where flue gases are passed through organic amines in water, binding the CO2 to the amines. Unfortunately, this inefficient process consumes around 30 per cent of the power it generates. By working with members on the CARMOF Project, we hope to design MOFs that can then be 3D printed and converted into membranes for use in larger adsorbing units."

The CARMOF Project is developing carbon capture and storage (CCS) technologies that make carbon capture more efficient and cost-effective. The project is funded under the European Commission's Horizon 2020 research and innovation programme. The work undertaken by the project partners is expected to contribute to the European Union's 2050 Greenhouse Gas emission reduction target.

"Our Nottingham site is home to the world's largest continuous multi-material nanoparticle manufacturing plant, meaning we can produce at a larger scale for maximum impact," Dr

Ambrose said. “Over the last few years, we’ve continued to develop MOFs ensuring the properties and performance are comparable or better than those already on the market. We believe that our pioneering technology can deliver significant environmental benefits for both the planet and people.”

Read the original article on The Engineer.