



Anellotech's New Technology Recycles Plastic Waste into Chemicals

Plas-TCat aims to convert a wide range of plastic waste into chemicals that can then be used to make new, virgin plastics.

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Sustainable technology company Anellotech is expanding its program with Plas-TCat, a new process technology that aims to convert a wide range of plastic waste directly into chemicals that can then be used to make new, virgin plastics.

Ninety-five percent of plastic packaging material is annually lost to the economy after a single use and often ends up in combustors, landfills or polluting the ocean. By leveraging Anellotech's existing Bio-TCat process, which converts biomass into bio-based chemicals and biofuels, Plas-TCat has demonstrated encouraging results in lab studies using pure plastics.

According to the company, Plas-TCat has the potential to offer a new, cost-effective process that will recycle significant quantities of waste plastics directly into commodity chemicals such as olefins, alkanes and aromatic chemicals, which are identical to their petro-based counterparts that are currently used by manufacturers to make virgin plastics. Anellotech wants to develop Plas-TCat so it can convert the majority of plastic materials used today, including composite films. Anellotech aims to use its Bio-TCat lab and TCat-8 pilot systems to feed in plastics waste, eventually developing and designing a commercial plant to efficiently make commodity chemicals at large scale, using the same basic process configuration.

Anellotech has expanded its development program, which is expected to last several years. The company has planned studies to ensure that the Plas-TCat process is robust and capable of running long term, on a range of real-world waste plastics feedstocks, with all the impurities that come with them. Anellotech's TCat-8 pilot plant extensively ran 24/7 with biomass, and the company expects it to do the same with plastics.

"Plas-TCat has the potential to transform plastic waste such as composite films, mixed plastics and plastics with biomass—such as paper labels—directly into valuable chemicals. It can handle oxygenated polymers, an important advantage over pyrolysis processes that produce complex oil mixtures which require upgrading and additional conversion in steam crackers," said David Sudolsky, president and CEO of Anellotech, in a statement. "With potentially high yields of valuable products, we are keen to use Plas-TCat in areas where plastic waste collection is not enforced and collection infrastructure to isolate waste plastics streams is currently lacking. By allowing payment for waste plastic, Plas-TCat provides economic incentives to tackle plastics pollution, especially in developing countries where much of the ocean plastic pollution originates. We are excited about this new venture and are seeking engagement with knowledgeable strategic partners to provide development funding, as well as knowledge in waste plastics supply chain and mechanical handling, to help accelerate this project."