

Cornell-developed polymer has commercial debut

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A sustainable, low-cost polymer developed by Cornell chemists has had its commercial debut.

The [polymer](#), called polypropylene carbonate, is made using a class of catalysts that was invented in the lab of Geoffrey Coates, professor of chemistry and chemical biology in the College of Arts and Sciences, and further developed by the Cornell spinoff company Novomer. A formulation of the polymer is now being sold by Jowat, a German supplier of industrial adhesives, for use in polyurethane hot-melt adhesives applications.

The science behind the new polymer is a catalyst that can polymerize [carbon dioxide](#) with organic small molecules called epoxides. The key to polymerization is a catalyst that selectively alternates the epoxide with carbon dioxide molecules, resulting in plastics that are up to 50 percent carbon dioxide. Novomer uses carbon dioxide and carbon monoxide to make high-performance, low-cost plastics. Typically, plastics are made from monomers that are derived solely from fossil fuels. The use of carbon dioxide and [carbon monoxide](#) results in more sustainable plastics.

"We started working on making [plastics](#) from carbon dioxide when I started as an assistant professor at Cornell in 1997," Coates said. "It is very satisfying to see that what started out as a crazy idea and some basic research has turned into a new commercial material."

Coates added: "A lot of credit goes to the National Science Foundation

for funding our original research, and even more important, the scientific team at Novomer, who turned this basic research discovery into a process practicable on the industrial scale."

Provided by Cornell University

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