

Controversial approach aims to expand plastics recycling

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Major chemical companies are backing pyrolysis plants that convert plastic waste into hydrocarbon feedstocks that can be turned into plastics again. The process uses high temperatures in the absence of oxygen to

break down plastics into a mixture of smaller molecules known as pyrolysis oil. But the practice has its critics, according to a cover story in *Chemical & Engineering News*.

Proponents of pyrolysis argue that the process can make up for the shortcomings of traditional recycling, which captures only about 9% of plastics in the U.S., according to the U.S. Environmental Protection Agency. But [environmentalists](#) are not yet convinced, and a growing number of jurisdictions, such as California, don't consider pyrolysis recycling at all, writes Senior Editor Alex Tullo. Critics say that pyrolysis facilities can't actually accept the mixed [plastic waste](#) that they claim to, as residual contaminants gum up the process too much. A second charge is that pyrolysis is really just incineration. Another concern is scale. Pyrolysis and other forms of chemical recycling have roughly 120,000 t of capacity currently onstream in the U.S.—a miniscule fraction of the 56 million t of overall plastics production in North America in 2021.

Industry executives say they are more committed than ever to recycling and are eager to practice pyrolysis at large scale. Firms are building facilities that are bigger than before to increase capacity. Many companies are attempting to take in more mixed waste, with approaches such as using catalysts and adsorbents to filter out [particulate matter](#) and eliminate the most reactive compounds from the feedstock stream. And interest in pyrolysis is taking off, with petrochemical companies building infrastructure to process the products of pyrolysis plants and large engineering companies licensing technology to third parties that want to get into the business. How the technology works in the [real world](#) will go a long way to determining the public's perception of the plastics industry.

More information: Amid controversy, industry goes all in on plastics pyrolysis, *Chemical & Engineering News* (2022).
cen.acs.org/environment/recycl...cs-pyrolysis/100/i36

Provided by American Chemical Society

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