

GET THE FACTS ABOUT “ADVANCED RECYCLING”



The chemical industry positions “advanced recycling” (sometimes referred to as “chemical” or “molecular” recycling) as the next big solution to solve the global plastic waste crisis. **But there’s a major problem: it’s not actually recycling anything.**

“Advanced recycling” generally refers to the **burning of plastic waste**. Most of these facilities use a process called pyrolysis. Most “advanced recycling” pyrolysis is done on a complex mixture of waste plastic, producing pyrolysis oil that is high contaminated with the toxic additives from the plastic and harmful byproducts. In reality, “advanced recycling” produces very little material that can be used to make other chemicals or fuels and generates significant amounts of health-harming air pollution, toxic waste and planet-warming greenhouse gases.

The chemical industry, including plastics manufacturers, wants to weaken the clean air protections that

apply to these facilities. By reclassifying “advanced recycling” as manufacturing instead of incineration, **these plants would skirt the clean air laws requiring them to limit their pollution.** The industry is also pushing to weaken U.S. chemical laws to make it easier to turn the toxic products from advanced recycling into new chemicals.

“Advanced recycling” is bad for our health, bad for the environment and bad for business. What’s more – all of the resources the chemical industry is devoting to this false solution could otherwise support the development of real and innovative solutions to the plastic waste crisis.



MYTH-BUSTING SO-CALLED “ADVANCED RECYCLING”

MYTH 1

“Advanced recycling” is like un-baking a cake – it breaks plastic down into ingredients that can be turned into new plastics, unlocking a circular economy and “closing the loop” to help solve the plastics waste crisis.



FACT 1

Just as it's not possible to un-bake a cake, it's virtually impossible to burn plastic waste to create new plastic products. Very little of the pyrolyzed plastic is usable for anything, and what little pyrolysis oil is produced is so toxic that its use is very limited. The remainder of the products of the “advanced recycling” process result in toxic air pollution and other chemical waste. The numbers just don’t add up: “advanced recycling” generates very little useable product, and at a significant cost to our health and the environment.

MYTH 2

“Advanced recycling” can manufacture new products out of plastic waste.

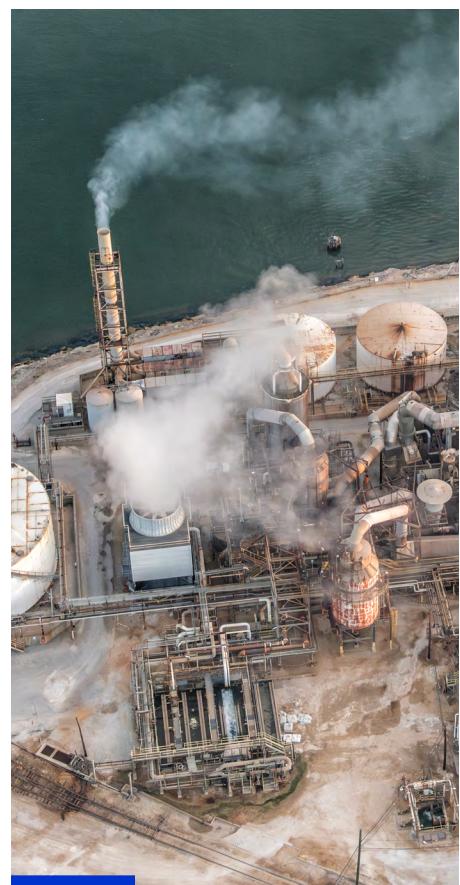


FACT 2

Pyrolysis, even under the guise of creating “new” plastic, is just another way to dispose of waste without making anything new. This process is not a way to make new plastics – or new chemicals, as the industry claims. The U.S. has longstanding laws designed to keep our air and water free of harmful by-products, like toxic waste and hazardous air pollution, that come from the waste management sector. Specifically, Section 129 of the Clean Air Act requires commonsense controls like air pollution control technology, waste management plans and air monitoring. The chemical industry’s efforts to dodge these protections by claiming that they are manufacturing chemicals rather than incinerating plastic would expose communities across the country to toxic, health-harming pollution.

MYTH 3

“Advanced recycling” via pyrolysis isn’t burning plastic, because it’s done in the absence of oxygen.



FACT 3

The components that make up plastics contain oxygen molecules. When heat is applied to break down these chemicals, the oxygen molecules present in the plastics are introduced into the process. And when PVC is included in the stream of waste plastics, pyrolysis will lead to the formation of dioxins, a group of highly toxic chemicals that cause harm to reproduction and development, damage the immune system and cause cancer.

MYTH-BUSTING SO-CALLED “ADVANCED RECYCLING”

MYTH 4

“Advanced recycling” processes are clean and emit less pollution than creating new plastics.



FACT 4

Pyrolysis is an extremely energy-intensive process – research shows that “advanced recycling” produces more pollution than creating new plastic. There are hundreds of different types of plastics which include hundreds more chemical additives to give plastics useful qualities like color, heat resistance, flexibility and more. As a result, when these mixed streams of plastics are incinerated together, the end product is a toxic soup of many different types of chemicals.

Additionally, the high heat required for the pyrolysis of mixed plastic waste produces carbon dioxide, methane and other greenhouse gas emissions, which contribute to climate change. These health and climate trade-offs aren’t worth the little useable product created by pyrolysis.

MYTH 5

“Advanced recycling” is an innovative process.



FACT 5

This is not an innovative process – it is old, ineffective technology dressed up with a new name. Industrial-scale pyrolysis processes were developed in the 1930s and 40s in Europe and the United States to convert wood into liquid fuel, but early investigations into pyrolysis date back as far as the mid-19th century. The small amount of product that comes out of the process often can’t be used to make new plastic at all – instead, at best it’s used for fuel, or mixed with petroleum to make fuels. These fuels contain highly toxic additives which contribute to toxic air pollution. As both EPA and industry have recognized, fuels derived from waste plastics can’t be made without these toxic additives. By their own admission, companies slowed funding for this ineffective old technology when EPA proposed a rule that would have regulated “new” fuels contaminated with the toxic additives.

MYTH 6

“Advanced recycling” will bring an economic boost and new jobs to my community.



FACT 6

Advanced recycling’s technical and economic inefficiencies – producing less than 10% of useable oil, according to multiple studies – has resulted in several facilities being canceled and shut down around the US. A quarter of the 12 plants that have been announced in the U.S. as of 2023 have closed due to operational failures or filed for bankruptcy, including several which had received significant public funding. Proposed and operating pyrolysis plants are also often located in low-income communities and communities of color that already face higher lifetime exposure to toxic air pollution and other environmental burdens.