

The Four Failures of Chemical Recycling

Chemical recycling is a proposed “solution” to plastic waste that carries serious financial, environmental, and health concerns.

1. Chemical recycling threatens human health



- “Chemical recycling” refers to a set of processes that transform plastic waste into ingredients for new plastics or fuel.
- This process generates toxic compounds through the use of chemical additives, cross contamination, and heat.
- These harmful chemicals remain in the final recycled product, threatening consumers’ health.

2. Chemical recycling produces toxic waste



- Chemical recycling converts only a small fraction of plastic into usable products, with the majority ending up as either low quality fossil fuels or hazardous waste.
- For some chemical recycling methods, up to 80% of the “recycled” plastic is actually converted to emissions or waste.
- These byproducts are then released as air pollution, incinerated, or sent to landfills, endangering workers in recycling facilities and residents in nearby communities.

3. Chemical recycling damages the environment



- The process is energy-intensive and relies heavily on fossil fuels.
- The environmental and climate impacts can be up to 100 times more damaging than the initial production of plastics.
- Chemical recycling facilities are prone to dangerous incidents like fires and explosions.

4. Chemical recycling is not economically viable



- The process competes with established forms of recycling for resources and subsidies, but fails to demonstrate cost-effectiveness or efficiency.
- Some plants have secured government subsidies, taking funds that could be used to support cleaner, more sustainable technologies.



“Corporations are turning to chemical recycling as a way to close the loop on plastics circularity. This is a deadly trajectory.”

- Terrence J. Collins, Ph.D., Carnegie Mellon University

Chemical recycling exacerbates, rather than solves, the plastic pollution crisis.

