



Chemical Plastic Recycling and Health

The M-LEEaD Center's Community Engagement Core (CEC) increases awareness and understanding of environmental health research.

Stakeholder Advocacy Board members include:

- Community Health and Social Services
- The Detroit Health Department
- Detroit Hispanic Development Corporation
- Detroiters Working for Environmental Justice
- Eastside Community Network
- Ecology Center
- Green Door Initiative
- MDHHS
- Sierra Club
- We the People of Detroit

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What is chemical plastic recycling?

Chemical plastic recycling (also known as pyrolysis, or advanced recycling) uses high heat and chemicals to break down plastic into liquid or gas, and turn it into either new plastic, or fuel.¹ This process is also known as “plastics-to-fuel” or “plastic-to-plastic” technology.



Not all plastic recycling is chemical recycling. There are different ways to recycle plastic. **Mechanical recycling** is the traditional method of recycling, and involves sorting, crushing, and melting plastic into pellets that can be used for new products.¹

How does chemical plastic recycling affect health?

Advocates for chemical recycling claim that it creates a higher quality product than mechanical recycling, and can reduce plastic pollution because more plastics can be recycled. However, chemical recycling is expensive and inefficient. It can release harmful chemicals into the environment, including toxic emissions and more greenhouse gases than mechanical recycling.^{1 2 3 9}

Burning plastic creates air pollution that can create many cancer-causing toxins such as **dioxins, phthalates, and benzene**. These pollutants can create or worsen conditions like **asthma, cardiovascular diseases, and cancer**.^{4 9}



How Does Chemical Recycling Affect Communities?

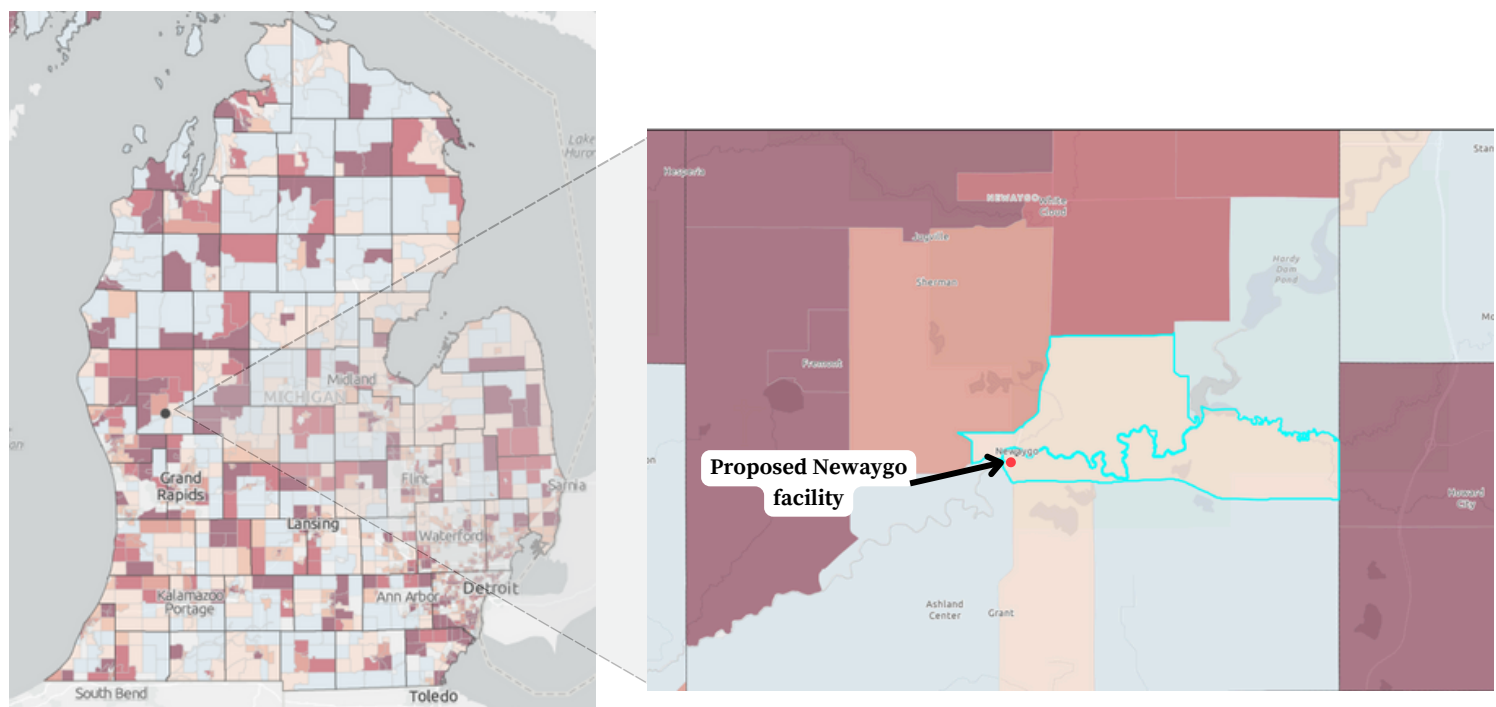
Pollutants from the chemical recycling process affect the health of communities living near processing sites.

One facility, Agilyx, shut down in 2024 after a report found it produced 211 tons of styrene waste between 2018 and 2022, which was all shipped offsite to be burned. Agilyx created more plastic waste than it could deal with, and was ultimately unprofitable. ⁵ **Even when facilities close, communities are often left with the environmental cleanup and health consequences.**

A report from the Natural Resources Defense Council (NRDC) found that these facilities are often located in **communities that are disproportionately low-income, people of color, or both.** ¹

Chemical Plastic Recycling in Michigan

Recent changes in Michigan’s waste disposal laws allow for the development of chemical recycling in Michigan. Newaygo, MI is slated to be the location of the state’s first chemical recycling plant. ⁶



Rank order of proximity to solid waste facilities in Michigan’s Lower Peninsula (Percentile compared to all Michigan census tracts.)

- Highest proximity (90-100th percentile)
- 2nd highest proximity (80-90th percentile)
- 3rd highest proximity (70-80th percentile)
- 4th highest proximity (50-60th percentile)
- Lowest proximity (40-50th percentile)

The maps above show that Newaygo is in an area with very high proximity existing solid waste sites and facilities, which already expose residents to emissions. The darker the color, the closer the community is to solid waste sites and facilities. The new facility will lead to higher exposures to the harmful emissions that come from chemical recycling. ⁷

How can we protect communities from the harmful effects of chemical recycling?

- Preventing new facilities from opening.
- Educating decision makers and residents about the realities of chemical recycling.
- Advocating against different forms of chemical and advanced recycling.
- Advocating for stricter air quality standards, and the enforcement of new and existing standards created to protect the health of communities from pollution coming from all industrial facilities.



The best way to reduce plastic pollution is to reduce the amount of plastic we use. What can Michigan decision makers do to reduce the use of plastic and prevent plastic pollution?

Research from the Ecology Center in Ann Arbor highlights essential solutions to plastic pollution: ⁸

1. Prohibit new high-heat waste facilities and other solutions that do not truly reduce plastic waste.
2. Reduce single-use and dangerous plastics:
 - a. Allow local governments to implement plastic restrictions.
 - b. Phase out all non-essential uses of PVC, polystyrene, and other dangerous plastics.
3. Have polluters fund plastic prevention initiatives
 - a. Update bottle deposit programs to include more types of containers.
 - b. Shift the responsibility of a product’s “end life” to manufacturers through Extended Producer Responsibility Laws.
4. Tackle microplastics in the Great Lakes



Scan the QR code or follow the link to find resources and learn more about chemical plastic recycling: linktr.ee/ChemicalPlasticRecycling



Please see http://mleead.umich.edu/Coec_Fact_Sheets.php for the citations included in this factsheet.

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