

Steam Crackers & Public Health



Fact Sheet



Steam Crackers

Steam crackers are industrial plants that convert byproducts of oil and gas drilling (e.g., ethane and propane), into chemicals used in the production of plastics (e.g., ethylene and propylene). They are also commonly referred to as ethane/ethylene crackers. Large investments are being made in new and existing steam crackers throughout the US, largely due to recent increases in supplies of oil and gas byproducts produced from shale drilling ("fracking").¹



Steam Cracker Locations

Among 32 US steam cracker facilities, 29 are located along the Gulf Coast regions of Texas and Louisiana in areas with a history of petrochemical industrial activity. Steam cracker facilities tend to be located in communities with greater proportions of non-Hispanic Black/African American populations, lower educational attainment, and lower income.



Greenhouse Gas Emissions

Between 2010 and 2019 steam cracker facilities emitted an average of 65 million metric tons of greenhouse gases (CO₂e) annually. This is equivalent to the annual emissions of more than 14 million passenger vehicles in the US each year between 2010 and 2019.²



Emissions

Steam crackers emit several harmful air pollutants including fine particulate matter, which can cause heart and lung problems, and volatile organic compounds, which can cause eye and lung irritation. Steam cracker air emissions also include chemicals known to cause cancer, including benzene and 1,3-butadiene.

Quick Facts

32

steam cracker facilities have operated in the US.

4

companies own half of all US steam crackers: LyondellBasell, Dow, Chevron Phillips Chemical, and ExxonMobil.

752,465

people live in census block groups within 5 km of a steam cracker.

54%

of people in census block groups within 5 km of a steam cracker are Hispanic or Black/African American.

Yale SCHOOL OF PUBLIC HEALTH

Findings from this research were published in Environmental Research: Health on July 3, 2023 (DOI: [10.1088/2752-5309/acdcb2](https://doi.org/10.1088/2752-5309/acdcb2)).

*Steam cracker statistics based on data as of 2019.

**Steam cracker facilities contain one or more steam cracker plants.

1. US Energy Information Administration. (2021, May 21). *U.S. ethane production to grow, along with expanding domestic consumption and exports*. <https://www.eia.gov/todayinenergy/detail.php?id=48056>.

2. US EPA. *Greenhouse Gas Equivalencies Calculator - Calculations and References*. <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>.