

Links and Excerpts from Union of Concerned Scientists' report, *Invisible Threat, Inequitable Impact: Communities Impacted by Cancer-Causing Ethylene Oxide Pollution*

Report link: <https://www.ucsusa.org/resources/invisible-threat-inequitable-impact#read-online-content>

Interactive map link:

<https://storymaps.arcgis.com/stories/c5e0665091804317b617f61c79ba09bd>

Local case studies:

- California: <https://www.ucsusa.org/resources/california>
- Colorado: <https://www.ucsusa.org/resources/colorado>
- Georgia: <https://www.ucsusa.org/resources/georgia>
- Maryland: <https://www.ucsusa.org/resources/maryland>
- Minnesota: <https://www.ucsusa.org/resources/minnesota>
- New Jersey: <https://www.ucsusa.org/resources/new-jersey>
- Puerto Rico: <https://www.ucsusa.org/resources/puerto-rico>
- Tennessee: <https://www.ucsusa.org/resources/memphis-tennessee>
- Texas: <https://www.ucsusa.org/resources/texas>
- Virginia: <https://www.ucsusa.org/resources/virginia>

Excerpts from report, *What UCS Found*

Commercial Sterilizers Are Often Located in Densely Populated Communities and Near Other Sterilizers

Many people may not know they live near a facility that emits EtO. Unlike chemical plants or refineries, commercial sterilizers may look like warehouses or large office buildings and be situated in or near residential areas. Often, they do not have large smokestacks or appear to be sites of major industrial activity.

UCS found that roughly 14.2 million people nationwide live within five miles of the 104 facilities in our analysis (Figure 1). More than 10,000 schools and childcare centers are within those same areas. California (15 facilities), Texas (nine), Puerto Rico (seven), Florida (six), Minnesota (six), and Georgia (five) are the states and territories with the most commercial sterilizers and EtO-emitting MON facilities. The commercial sterilizers in the top 10 most populous communities overall (more than 300,000 people living within five miles of at least one facility) are in California (six), New Jersey (two), Texas (one), and Utah (one).

The UCS analysis also identified EtO "sterilizer hotspots"—communities within five miles of two or more commercial sterilizers (in other words, two or more sterilizers that are less than 10 miles apart). We found that 28 percent of commercial sterilizers are in hotspots, potentially exposing people to multiple EtO sources ([Table 1](#)). Note that this finding does not include other EtO-emitting facilities that may be in those communities.

Living in a sterilizer hotspot does not mean that a person is absolutely exposed to hazardous levels of EtO, but someone could be exposed to EtO from multiple facilities. Nevertheless, the EPA does not account for these cumulative exposures. Three hotspots with multiple commercial

sterilizers are home to facilities identified by the EPA as having an elevated cancer risk from EtO emissions: in Denver, Colorado; Hanover-Jessup, Maryland; and Richmond, Virginia.

Several facilities may be violating the Clean Air Act. According to the UCS analysis, eight of the 46 commercial sterilizers identified by the EPA as contributing to elevated cancer risks, in hotspots, or both have been in noncompliance with the Clean Air Act at least once during the last 12 quarters or been subject to informal or formal EPA enforcement actions in the last five years ([Table 1](#)).

Unfortunately, penalties for violating the Clean Air Act too often represent a small cost of doing business. For example, the Sterigenics facility in Charlotte, North Carolina, paid [\\$11,500](#) in penalties in 2020 for a Clean Air Act violation, a drop in the bucket for a company that [reported](#) more than \$931.5 million in total net revenues in 2021 (ECHO 2020; SEC 2021).

Communities near EtO-Emitting Commercial Sterilizers and MON Facilities Face Elevated Cancer Risks

The UCS analysis found that communities adjacent to commercial sterilizers and EtO-emitting MON facilities are exposed to above-average cancer risks from toxic air pollutants. According to the EPA's AirToxScreen 2018,⁵ Americans face an average cancer risk of 20 additional cases per 1 million people if they breathe air toxics based on 2018 emissions levels for 70 years (EPA, n.d.c). This estimate incorporates most Clean Air Act--regulated air toxics, including EtO.

According to the UCS analysis, the average cancer risk from air toxics in the census tracts where these 104 facilities are located is nearly 60 additional cancer cases per 1 million people—nearly three times the national average (AirToxScreen 2022). Furthermore, EtO emissions contribute to roughly one-third of the total cancer risk in these census tracts, representing a significant portion of cancer risk among 138 air toxics included in AirToxScreen (EPA, n.d.c). The overall air toxics cancer risk in the census tracts where these facilities are located ranges from 10 to 400 additional cancer cases per 1 million.

Fifteen facilities are in census tracts with a total air toxics cancer risk of at least 100 per 1 million, which is the EPA's threshold for acceptable risk. These facilities are in Arizona (two), Florida (one), Georgia (two), Louisiana (one), Missouri (one), Puerto Rico (two), Tennessee (one), and Texas (five).

Commercial Sterilizers and EtO-Emitting MON Facilities Are Disproportionately Located in Underserved Communities

Exposure to EtO is an urgent environmental justice issue. UCS has estimated the total number of people living within five miles of each facility, including the proportion of people of color, low-income residents, and people with limited English language proficiency. Of the roughly 14.2 million people living within five miles of at least one facility, nearly 8.5 million identify as people of color; 4.8 million identify as people with low incomes, and 1.2 million identify as people with limited English language proficiency ([Table 2](#)).

Compared with the counties in which the facilities are located, 57 commercial sterilizers (59 percent) are in communities with a higher proportion of people of color; 41 (43 percent) are located in communities with a higher proportion of people with low incomes; and 24 (25 percent) are in communities with a higher proportion of people with limited English language

proficiency. Of the eight facilities with MON-related EtO emissions, five are in communities with a higher proportion of people of color compared with the county averages. For 16 commercial sterilizers and two MON facilities, the proportion of people of color, people with low incomes, *and* people with limited English language proficiency are all greater than the average for the counties in which the facilities are located.

These differences are even more pronounced when compared with the nation overall. Twenty-seven commercial sterilizers and two MON facilities (28 percent of facilities included in this analysis) are in communities with a higher proportion of people of color, people with low incomes, *and* people with limited English language proficiency compared with the US average. Indeed, on average, commercial sterilizers and EtO-emitting MON facilities appear to be concentrated in communities *and* counties with a higher proportion of people of color, people with low incomes, and people with limited English language proficiency compared with the United States overall ([Table 2](#)).

Our findings align with those of an EPA Inspector General's 2021 [report](#). It stated that "minorities or [people] part of low-income households" comprise more than half of the people living in census block groups of 14 (of 22) EtO-emitting facilities contributing to elevated cancer risks (OIG 2021).

The UCS analysis substantiates earlier analyses that communities of color are treated as sacrifice zones for toxic pollution (Lerner 2010). Nearly 62 percent (64) of commercial sterilizers and facilities with MON-related EtO emissions are in communities where the proportion of people of color is greater than the US average.

These disproportionate impacts are particularly stark in sterilizer hotspots. Seventeen of the 27 sterilizers (63 percent) in hotspots have a greater proportion of people of color within five miles compared with county averages. On average, the proportion of people of color within five miles of these facilities in hotspots is nearly 10 percent greater than communities within five miles of sterilizers in non-hotspot areas. Multiple commercial sterilizers and other polluting facilities may expose the communities in these hotspots to harmful EtO emissions. Furthermore, more than half (13) of the 23 commercial sterilizers contributing to excess cancer risk from EtO emissions are in communities with a higher proportion of people of color compared with county averages.

Indeed, communities of color face higher cancer risks from air toxics overall. Among the facilities in communities with a higher proportion of people of color than the US average (40 percent), the average air toxics cancer risk is nearly 70 cases per million—which is 17 percent greater than the average for census tracts with commercial sterilizers and EtO-emitting MON facilities overall. And finally, among the facilities in our analysis, 15 (12 commercial sterilizers and 3 MON facilities) have been found to be in noncompliance with the Clean Air Act in at least one of the last 12 quarters. Ten are in communities with a higher proportion of people of color than the US average.

In sum, race is a key indicator of exposure to ethylene oxide from commercial sterilizers and MON facilities. People of color are disproportionately exposed to EtO emissions, face elevated cancer risks, and are in communities that are more likely to have multiple commercial sterilizers and facilities that fail to comply with the Clean Air Act.