There is currently not an EPA-approved method for monitoring EtO in ambient air. Although we do not currently have ambient monitoring data for ethylene oxide in Laredo, we did investigate the EPA’s modeled (estimated) levels of ethylene oxide in Laredo through their National Air Toxics Assessment (NATA). From that assessment, it seems that the highest estimated concentrations of ethylene oxide in Laredo are 0.110 µg/m³ around the Midwest Sterilization facility, with most of the city at much lower levels (0.001 – 0.015 µg/m³).

TCEQ has conducted an extensive analysis of the potential health risks from ethylene oxide (see our website: https://www.tceq.texas.gov/toxicology/ethylene-oxide), and based on this analysis we have concluded that even 70 years of exposure to concentrations less than 4.3 µg/m³ will cause minimal cancer risk. Therefore, the EPA’s estimated levels of ethylene oxide in Laredo are far below levels that could impact public health. The TCEQ’s risk estimate includes consideration of children being exposed to ethylene oxide, so children are also protected when ethylene oxide concentrations are below our lifetime risk value of 4.3 µg/m³.

Another way to determine whether the people of Laredo have experienced measurable increased cancer risks from ethylene oxide (or from other sources), is to investigate the cancer rates in Webb County (Laredo comprises 95% of the population of Webb County). This data is available from the Centers for Disease Control and Prevention (https://gis.cdc.gov/Cancer/USCS/#/AtAGlance/) and the Texas Department of State Health Services (https://www.cancer-rates.info/tx/).

The attached graphs show the age-adjusted cancer incidence rates for the entire United States, for the state of Texas, and for Webb County. They include all cancer types, as well as non-Hodgkins lymphomas, leukemias, and breast cancers (cancers that have been attributed to ethylene oxide exposure). These graphs show that the cancer rates in Webb County are statistically significantly lower than the rest of Texas and the United States as a whole, which does not support the conclusion that the people of Laredo are suffering from undue exposure to ethylene oxide or other carcinogens.

TCEQ and the EPA have estimated different risks from ethylene oxide exposure. The EPA’s conclusions about risk are based on their evaluation of ethylene oxide that was completed in 2016. The TCEQ completed a risk evaluation for ethylene oxide in 2020, to inform the TCEQ air monitoring and air permitting programs. TCEQ’s evaluation was informed by scientific studies and data analyses that were conducted after 2016 (and were therefore not available to EPA for their 2016). Based on the ethylene oxide literature, particularly the newer studies and analyses, TCEQ concluded that the risks from exposure to ethylene oxide were similar to the risks from benzene (a common air pollutant of concern), and TCEQ set an acceptable concentration in air that was consistent with that risk.

TCEQ also extensively evaluated the EPA’s ethylene oxide risk estimates, but concluded that the risks from ethylene oxide were not as severe as EPA asserted in their earlier assessment. Because of the complexity of, and the general interest in, the EtO assessment, TCEQ has a webpage devoted to EtO where you can find substantial information on the topic (https://www.tceq.texas.gov/toxicology/ethylene-oxide).
Thanks,

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Data Sources: Texas Cancer Registry and CDC’s National Program of Cancer Registries Cancer Surveillance System
https://gis.cdc.gov/Cancer/USCS/#/AtAGlance/
https://www.cancer-rates.info/bx/