

Revising OSHA's Ethylene Oxide Regulations Is Key to Protecting America's Workforce

Ethylene oxide is known to cause cancer. Too many workers face unacceptable risk when exposed to this gas, writes attorney Jordan Cade.

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Every day, thousands of workers in the country inhale a substance that science and federal authorities have long recognized as a clear human carcinogen: [ethylene oxide \(EtO\)](#). Valued for its [high permeability](#) as well as material compatibility and ability to operate at low temperatures, this colorless gas has become integral to the healthcare, pharmaceutical, and petrochemical sectors, where it is used to sterilize numerous delicate medical devices and to produce a range of chemicals. However, the same characteristics that make EtO commercially indispensable also allow it to travel freely through the air, accumulate in enclosed spaces, and bind permanently to DNA and proteins—exposing frontline workers to an invisible hazard that can trigger malignancies and other chronic illnesses. Worse, even with scientific consensus proving this issue, the Occupational Safety & Health Administration (OSHA) still enforces decades-old regulations that do not reflect the level of danger facing at-risk people. And until those standards are aligned with current toxicology and real-world workplace conditions, workers in EtO-reliant facilities will continue to bear risks that are neither inevitable nor acceptable.

Workers Pay the Price for U.S.' Reliance on Ethylene Oxide

The essential role of EtO in sterilization and chemical manufacturing cannot be overstated. Accordingly, since its [first domestic production in 1925](#), it has grown into one of the 25 most heavily generated industrial substances in the United States. And studies indicate that [over 97% of this volume](#) serves as a chemical intermediate vital to the manufacture of other compounds and, ultimately, of industrial and consumer goods. Meanwhile, a substantial portion is also used as a fumigant to sterilize more than 20 billion medical and surgical instruments—or 50% of all devices—with its efficacy in destroying bacteria and viruses without damaging heat-sensitive components. But though EtO has been beneficial in producing building blocks for everyday items and ensuring that hospitals and clinics have safe instruments for patient care, it also raises serious health concerns for workers who handle it daily. In fact, the country's Environmental Protection

Agency (EPA) has already confirmed that this substance can trigger the development of [white blood cell cancers](#)—such as leukemia, myeloma, and non-Hodgkin lymphoma—as well as [tumors](#) of the brain, breast, connective tissue, lung, and uterus.

Unfortunately, despite this apparent danger, [more than 80 commercial sterilization facilities](#) nationwide continue to rely on EtO and release concerning concentrations. Among these, [25 local plants](#) were reported to pose a cancer risk beyond the federal benchmark of 100 in one million. These include the [Midwest Sterilization Corporation](#) in Laredo, Texas, whose emissions caused workers and nearby residents to be susceptible to cancer 350 times the standard threshold.

Similarly, the [Sterigenics Willowbrook Facility](#) in Illinois posed comparable danger after its recorded lifetime cancer risks exceeded the acceptable limit by as much as 64-fold. Besides these sterilization companies, the petrochemical industry also continues to employ EtO. True to this, at least [25 organizations](#) are expected to maintain operations at their local facilities across various states following a two-year exemption recently granted by the federal government. Some notable entities in this sector are Shell Chemical LP—with a plant in Louisiana—and BASF Corporation and Union Carbide Corporation, both of which have facilities in Louisiana and Texas. The combination of outdated rules, high-volume operations, and delayed regulatory enforcement means that thousands of workers, as well as surrounding communities, remain exposed to a lethal compound.

The Urgent Need for EtO Regulation Reform

Although the hazards of EtO have been recognized for decades, [OSHA's exposure limits](#) remain anchored in rules last updated in 1984. Under these standards, sterilization and petrochemical companies may legally continue to use such a gas so long as airborne concentrations remain at or below 1 part per million (ppm). Yet while this allows their operations to comply with the law, it does not ensure that employees are adequately protected, especially given that scientific evidence already indicates that even minimal EtO exposure can have detrimental effects. Also, the rule requires management to perform periodic air testing and ensure proper ventilation and the use of personal protective equipment. But without continuous monitoring or real-time exposure controls, workers remain at risk of repeated contact with the chemical.

That disparity between legal compliance and actual safety is alarming. As such, OSHA must modernize its standards by implementing stricter exposure limits as well as continuous monitoring and advanced engineering controls. Workers at risk must likewise be granted seamless access to accurate exposure data and comprehensive training. And most importantly, they must receive long-term medical support, particularly if they have already developed related health issues. Adopting these measures means seizing a timely opportunity to transform mere compliance into genuine safety, to safeguard the workforce and the broader community sufficiently, and to even reinforce accountability among organizations that continually use this hazardous chemical.

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