



**Agency for Toxic Substances and Disease Registry (ATSDR) - Health Evaluation of Ethylene Oxide  
Concentrations in Outdoor Air Near Medline Industries and Vantage Specialty Chemicals  
Lake County, IL  
Health Consultation Report for Public Comment – June 2024**

**What did ATSDR find at Medline?**

- Emissions of ethylene oxide (EtO), a colorless odorless gas that can be used to clean medical devices, near the Medline plant have been going down in recent years, suggesting that controls on the plant have been working.
- The most recent EtO data from 2023 that ATSDR was provided suggest that EtO levels were low enough to not pose a cancer risk to offsite workers who work near the plant.
- ATSDR cannot rule out the possibility that breathing EtO for many years at levels measured near the Medline plant between 2020 and 2023 may contribute to a small increase in lifetime risk of certain cancers for people living within 0.7 miles of Medline.

**What did ATSDR find at Vantage?**

- The most recent EtO data ATSDR had to analyze around Vantage were from June 2019 to May 2020. This timeframe could include periods when pollution controls may not have been fully operational.
- Based on these data, ATSDR found that breathing air with EtO for many years at levels measured near the Vantage plant between June 2019 and May 2020 may result in a small increase in the risk of certain cancers for residents living within 0.6 miles of Vantage and people who work within ¼ mile north or east of the Vantage facility.

**What do ATSDR's findings mean for the communities around Medline and Vantage?**

- When ATSDR assesses cancer risk from EtO, it assumes that people breathe air with EtO levels towards the higher end of what has been measured. This means that ATSDR's analysis may overestimate cancer risk. This is done to protect health, especially for people who may be most sensitive to pollution.
- ATSDR estimated that the possible excess lifetime cancer risk in the community living within 0.7 miles of Medline may be between 1 and 10 excess cancers per 10,000 people who breathed EtO for many years.
- For Vantage, the possible lifetime excess cancer risk may be between 1 and 20 excess cancers per 10,000 people who breathed EtO for many years.
  - The amount of time required to create excess cancer risk depends on how old you are and how close you live or work to the facility.
  - To put the possible excess cancer risk for communities around Vantage and Medline in perspective, about 3400 people live within 0.7 miles of Vantage and 1300 people live within 0.7 miles of Medline.
- Any potential increase in cancer risk from breathing EtO would be in addition to a person's baseline lifetime cancer risk from all causes.
  - In the United States, the lifetime risk of getting cancer for a man is 1 in 2 and 1 in 3 for a woman.

**What actions does ATSDR recommend?**

ATSDR recommends additional EtO monitoring be done to assess current EtO levels at Vantage to confirm that the EtO controls are working as intended to protect health.

ATSDR also recommends that Illinois EPA and the two facilities investigate potential sources of EtO emissions that may affect EtO air concentrations at the closest residential areas and adjacent businesses.

## Q&A

### **What can people who live in communities around Vantage and Medline, and who are worried about long-term EtO exposure, do to protect their health?**

ATSDR recommends that everyone have regular medical checkups and age-appropriate health screening tests, including mammograms and other recommended cancer screenings. ATSDR also encourages you to talk to your doctor about your health concerns. ATSDR has a Clinician Brief on EtO ([ATSDR Clinician Brief: Ethylene Oxide](#)) that you can provide to your doctor to inform them about EtO exposure.

### **How far from the facility is the risk elevated for cancer for people living nearby?**

Monitoring for EtO in this report was only done at certain locations. Estimates of excess lifetime cancer risk are based upon what was measured and cannot be tailored to specific distances from the Medline or Vantage facilities.

### **Which cancers are associated with EtO exposure?**

Occupational epidemiology studies concluded workers with exposure to high EtO concentrations for many years is associated with lymphoid cancers (non-Hodgkin lymphoma, myeloma, and lymphocytic leukemia) and female breast cancer.

### **If someone suspects they may be exposed, is there a test that they can take to assess EtO exposure?**

There are medical tests that can show if an individual has been exposed to ethylene oxide, but these tests won't predict if you will have health problems. ATSDR does not recommend using any test, including hemoglobin adducts of ethylene oxide (HbEO) blood tests, to determine if community members are exposed to EtO.

- HbEO forms from the binding of EtO with hemoglobin in red blood cells. Because red blood cells stay in circulation for about four months, HbEO indicates total EtO exposure from all sources over the past several months.
- HbEO blood levels cannot determine the source of EtO exposure, how long a person was exposed, or if past, current, or future medical problems are associated with exposure.
- Other factors besides EtO exposure from a facility that can influence the level of HbEO found in a person's blood include smoking habits and genetic differences that affect metabolism.

*ATSDR, a federal public health agency of the U.S. Department of Health and Human Services, invests in everyone's health by evaluating the potential for adverse human health effects of exposure to hazardous substances in the environment.*