Testimony to the
Illinois General Assembly
Energy & Environment Committee
By
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Good morning, Chairwoman Williams, Vice-Chairwoman Gabel and members of the Committee. My name is Dr. Kimberly Wise White and I am a Ph.D. toxicologist with the American Chemistry Council. For nearly a decade, my work has focused on supporting scientific research, chemical risk evaluation processes and regulatory decision-making based on knowledge about hazard and risk. I appreciate this opportunity to appear before the Committee today to provide one scientist's perspective.

Addressing concerns regarding potential public health risks of ethylene oxide and protecting the health and safety of Illinois's citizens is critically important. As a toxicologist, I also feel it is imperative that lawmakers and the public understand that the mere presence of a chemical in a product or in the environment does not mean that chemical will cause harm to people. Chemistry is a basic fact of life. Each and every day, we are naturally exposed to a broad range of chemicals through both the environment and our normal human functions. So rather than pointing to the mere presence of a chemical, it is critical to consider actual exposure when assessing its safety.

The fact is that any substance —even water—can be toxic if too much is ingested or absorbed into the body. The risk presented by a specific substance depends on a variety of factors, including how much a person is exposed to, how they are exposed, and for how long. Considering these distinctions are essential when it comes to regulating chemicals. This is a particularly important principle as we begin our discussion about ethylene oxide.

Ethylene oxide is an essential raw material used in the formulation of numerous products like coatings and adhesives; brake fluids; as well as applications in medical sterilization. Given ethylene oxide's broad application, having science at the forefront to managing potential risk from exposures is key. I'd like to take this opportunity to expand on a few important points regarding hazard and risk that the Committee should keep in mind as they evaluate possible legislative actions.

1. First, we must consider where and how people are exposed. While most of the discussion has been on industry emissions, ethylene oxide is present in the environment and is created by various sources, like vehicle exhaust, cigarette smoke and plants. Additionally, the human body is a chemical factory, making its own ethylene oxide through normal biological processes. Did you know that EPA's value is so low that each one of us in this room is currently exceeding EPA's number just by sitting here and based on that assumption we are also all potentially increasing our cancer risk? This is why understanding actual risk is so important. I don't think that any of us would suggest that we are elevating our own cancer risk just by sitting in this room.

2. A second point is that over the last 30 years, advances in science have vastly improved our understanding of how chemicals like ethylene oxide interact with the human body and the environment. Thus, we must evaluate all the available science when seeking to understand ethylene oxide risk. As a toxicologist, the first and most basic premise we learn is that all substances have the ability to cause effects and it is really important that we have a clear understanding of the concentration or dose. Many of the fruits and vegetables we eat every day have chemicals in them that are toxic. See this handout, for example, that shows potatoes, apples, cucumbers and pears. These foods all contain chemicals known to be toxic if consumed at a high enough dose. What this means is that just because a chemical has the potential to cause effects at some high concentration does not necessarily mean that it will cause effects at lower concentrations. I eat about 4 apples or pears each week. Even though these fruits contain toxic chemicals, I never worry about potential hazardous effects because I understand that my consumption does not rise to the level that would cause concern. As I mentioned before, it is extremely important that any Committee decisions consider both the potential for hazard and chemical exposure.

3. This understanding and application of risk ties directly into my final points, which are related to why there has been concern regarding ethylene oxide emissions and subsequent facility closures. Much of the information that has been discussed regarding ethylene oxide cancer risk has been associated with a finalized chemical assessment by EPA and use of that assessment by the EPA's National Air Toxics Assessment (NATA) program to determine air toxics that may be increasing cancer risks. What I have not heard is a discussion of the significant uncertainties and cautions regarding the interpretation of this information. For example:

    - EPA's NATA is a screening tool and it should not be the sole basis for setting regulations, controlling emissions or characterizing risk. Screening tools simply answers the question, "Does this thing need further evaluation at this time?" It's like when your check engine light shows up in your car, it doesn't mean the whole car needs to be shut down or taken to the junk yard. What it means is that the car needs a check to see if there is anything wrong that requires repair. It could just be a faulty light bulb or a loose gasket, which is why further evaluation by a qualified person is needed. It does not mean that you should completely discard your car. Unfortunately, by comparison in using the NATA screening tool, that is what appears to be happening here: we are closing down facilities and proposing legislation based on only screening level information instead of having further evaluation done by scientists to determine if a problem actually exist.

    - Additionally, the EPA's ethylene oxide assessment includes no consideration of actual human exposures or their relation to EPA's value. This is a problem when not fully understood by decision-makers. For example, other agencies that have taken a similar approach to EPA's have found that common things like red meat or hot beverages like coffee are probably carcinogenic. This is because those assessments, like the EPA's, do not consider real world exposure. Exposure information is out of scope for EPA's assessment and thus the information the assessment provides is ultimately incomplete and likely an inaccurate picture over overall risk.

- Finally, the public sometimes misunderstands what these EPA assessments mean. Again to be clear, they take no account of typical levels of human exposure or consumption. So it is not really measuring "risk" or the likelihood of a person getting cancer from something. It is just providing potential pieces of information that should be considered and evaluated further to see if a problem exists.

I call attention to all these points to highlight why science-based policies to evaluate and manage potential ethylene oxide risks are so important. As we have seen in this particular case, when hazard information is taken out of context and not appropriately used with exposure information the conclusions can be mischaracterized and misunderstood. Ultimately, clear understanding of actual ethylene oxide risk is imperative for protecting human health and the environment. It also ensures public confidence and trust in the regulatory and legislative processes.

Thank you for this opportunity to provide testimony. I look forward to addressing your questions and working with members of the Committee on science-based approaches to determine ethylene oxide risk.