

Benzene in Oregon's Air

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Benzene is a toxic air pollutant that can cause serious health effects including cancer. Oregon currently has some of the highest reported levels of benzene in the United States. Gasoline is the major source of that benzene. Refineries in the Pacific Northwest use crude oil from Alaska that is naturally high in benzene.

Northwest levels will decline

In March 2006, the Environmental Protection Agency proposed the Mobile Source Air Toxics rule that will initiate nationwide reductions of benzene levels in gasoline. EPA's proposed rule originally left Oregon and the Pacific Northwest with the highest benzene levels in gasoline in the country. Under EPA's initially proposed rule, our benzene levels would have been twice east coast levels.

In response to concerns expressed about the high benzene content of the Northwest's gas, EPA established a benzene cap on each refinery in the country. To meet the new standard, most Northwest refineries will be required to install emission control equipment to reduce benzene. These controls must be in place by 2012, and will result in benzene levels in Northwest gasoline that are comparable to other parts of the United States.

Health effects of benzene

Current medical research demonstrates a clear association between various detrimental health effects and repeated exposure to benzene in occupational settings. Laboratory animal studies have confirmed the harmful effects of repeated exposure to high levels of benzene. Health effects include cancer (primarily leukemia) and damage to the nervous system, immune system and blood cell production.

Cancer is a disease caused by a complex combination of factors that are difficult to link back to a specific environmental pollutant. Many factors, both voluntary and involuntary, contribute to an individual's risk of cancer. In the United States, cancer rates are approximately 50 percent for males and 33 percent for females for all types of cancer.

The Oregon Public Health Division and DEQ are concerned about any additional cancer burden. The last set of estimates in 2002 indicated that benzene was more than 20 times over the acceptable cancer risk of one in a million, about

twice the national cancer risk for this pollutant. New data will be available later in 2010.

Oregon's Air Toxics Program

Since 2004, DEQ and the Oregon Public Health Division have worked collaboratively to develop Oregon's Air Toxics Program. The work began with a science advisory committee dedicated to identifying the most dangerous air toxic pollutants in Oregon. Recent discoveries about the levels of benzene and other pollutants in the Portland area are a result of recent DEQ and Public Health air quality studies.

In response to these concerns, DEQ created the [Portland Air Toxics Solutions](#) project to work with local communities to develop an air toxics reduction plan for the Portland region. This plan will include strategies for reducing benzene.

Limiting our exposure to benzene

DEQ has several programs to reduce benzene. DEQ regulations require that Oregon's service stations, gasoline transporters, bulk tanks and terminals have equipment to capture gas vapors. These regulations protect the health of employees and the public, conserve fuel, prevent spills and contamination, and prevent the malfunction of vapor recovery systems installed on newer vehicles.

Oregon law now prohibits attendants from topping off vehicle fuel tanks during refueling. Topping off causes gasoline drips and spills that increase public exposure to harmful pollution, wastes fuel, and causes vapor recovery equipment in vehicles and at gas pumps to malfunction.

In addition to vehicle emissions and gasoline fumes at fueling stations, other common ways people are exposed to benzene in the air include working in certain occupational settings, breathing smoke from woodstoves and smoking.

What you can do to reduce benzene

There are many things people can do on their own to reduce benzene and other air toxics in the environment:

- Keep vehicles properly maintained
- Drive less
- Avoid unnecessary idling
- Use public transportation, carpool, bike or walk
- Switch to a natural gas fireplace



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- Use certified woodstoves and burn only clean, dry wood or compressed logs
- Quit smoking
- Avoid exposure to second hand smoke

Alternative formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

