

AIR QUALITY BASICS: The Mayor's Benzene Plan

Do you know what detergents, volcanoes, and cigarettes have in common? Each one either uses or produces the chemical benzene, a colorless liquid that was used as an after shave at the turn of the century because of its sweet smell. At that time, benzene was a by-product of coke production in the steel industry, but today, most of it's produced from petroleum. Benzene is an important manufacturing compound because it's also used to make other chemicals to produce plastics and synthetic fibers.

Despite its wide use in the U. S. (one of the top 20 production chemicals) health effects attributed to benzene are cause for concern. Breathing high concentrations of

to a certain concentration of benzene over their lifetime. The EPA's goal is to have no more than one person in a million be diagnosed with cancer, but concentrations in some areas of East Houston put the risk at ten people in a million to be diagnosed with cancer. And for that reason, Houston Mayor Bill White has formulated a plan that targets major sources to reduce benzene emissions for residents of Houston.

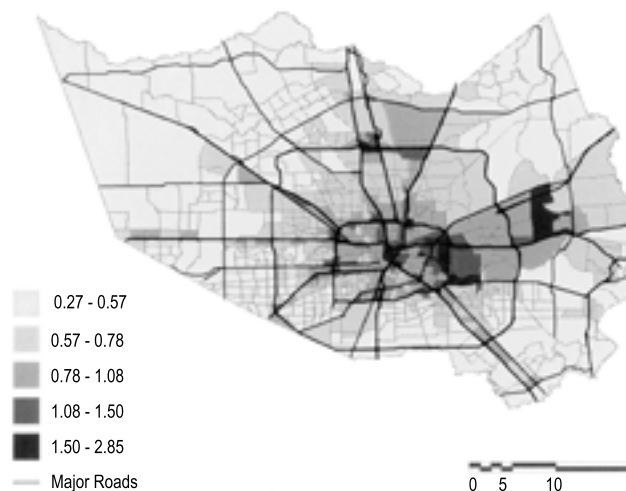
Benzene emissions come from on-road vehicles and industrial sources. Federal regulations have put limits on the amount of benzene in gasoline. And by regulating the way car manufacturers produce vehicles, limits have been placed on the amount of benzene that can be emitted through the tailpipe of cars, SUVs and light-duty trucks. As older, more polluting vehicles are replaced with newer, cleaner models, benzene emissions from on-road vehicles will continue to be reduced. However, benzene emissions from industrial sources are regulated by determining cancer risks as discussed above. By using monitoring devices that take air samples to measure the concentrations of benzene coming from area industrial plants, scientists can determine the risk of cancer for residents located in close proximity to the plants.

The Mayor's Benzene Plan targets 7 facilities that emit the most benzene and pose the greatest health risk based on their location to residential areas. The plan gives facilities five years to reduce their benzene emissions by adopting specific projects identified in the plan. These strategies include controls on leaks, flares, storage tanks, and wastewater collection and treatment. All plans will include improved monitoring to measure emissions reductions. Facilities will also make their monitoring data available and submit an annual report to the city of Houston.

Facilities that participate in the plan are committing to stricter standards than those required by law. They will receive assistance from the city to develop reduction strategies, and will be praised publicly for their efforts. In addition, the residents of Houston and Harris County will breathe easier because of their commitment.

Benzene Concentrations in Harris County Census Tracts

Data from the U.S. EPA's National-Scale Air Toxics Assessment



Source: "The Control of Air Toxics: Toxicology Motivation and Houston Implications"

benzene can cause drowsiness, dizziness, and even unconsciousness. Exposure to benzene over time can affect bone marrow and result in anemia and leukemia. Its cancer-causing properties are well established, but defining a safe concentration is debated by regulators and health experts.

As the location of the largest petrochemical complex in the U.S., Harris County is responsible for 11.3% of reported benzene air emissions in the country, according to the Environmental Protection Agency, and is home to almost 4 million people. Benzene emissions have decreased remarkably since 1988, now being 18% of what they were. However in some areas of Harris County, mostly along the Houston Ship Channel, observed concentrations put some people at a definite risk of contracting cancer.

The EPA measures risk in terms of the number of people in one million who will develop cancer from being exposed

Targeted Benzene Facilities

- Lyondell Chemical, Channelview
- Exxon Mobil Baytown Refinery
- BP Products North America, Texas City
- Shell Oil, Deer Park
- Equistar Chemicals LP, Channelview Complex
- Exxon Mobil Baytown Chemical Plant
- Lyondell Houston Refining LP