

Air tests find toxic chemicals near Lanxess Plant

Odors tipped neighbors off

May 12, 2005

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Neighbors of the Lanxess Plastics Plant in Addyston have long suspected that the odors coming from the plant don't only constitute a nuisance, but may also signal the release of chemicals that can be harmful to human health. Three weeks ago, neighbors took matters into their own hands and tested air emissions coming from the plant during an evening where the odors were strong. The results of these tests show that the neighbors were right: toxic chemicals, regularly released by the Lanxess Plant, were present in the air directly across the street from the plant.

On Wednesday, April 20, 2005, neighbors smelled strong chemical odors coming from the Lanxess plant, and experienced sore throats and irritation in their noses and throats. Two neighbors, one armed with a "SUMA" air monitoring canister and the other with an air sampling "bucket," took their own air quality samples at approximately 6:30 p.m. They took the samples at the corner of Route 50 and Dining Road in Addyston, across the street from the Lanxess Plastics plant, near Meredith Hitchens Elementary School.

The neighbors sent the samples to laboratories for analysis, and the results show that both tests proved the existence of toxic chemicals in the air, several at levels considered unsafe by various regulatory agencies. Below is a description of the results of each sample, as well as information on the "Levels of Concern" for those chemicals established by various state and regulatory agencies. Ohio Citizen Action plugged the numbers found in the samples into formulas found at the Citizens for a Better Environment website <http://www.cbecal.org/action/cTools0602.shtml> .

Neighbors also took samples on Friday, May 6 because of a strong odor in North Bend. They are currently awaiting the test results.

1. SUMA canister

The SUMA canister is an air sampling device that detects chemicals in the air. These silver canisters are owned and used by Hamilton County Department of Environmental Services as a part of their odor investigations. Through their Citizen Sampling Program, Hamilton County lends 10 canisters out to neighbors. These samples are taken over a period of a few minutes. Samples are mailed to a lab, where they are analyzed for chemical concentrations at low levels, using a detection method known as TO-14.

The SUMA canister sample taken on April 20, which was tested by DataChem labs, found:

Acrylonitrile	.44 ppb
1,3-Butadiene	1 ppb
2-Butanone	1 ppb
styrene	5 ppb
acetone	15 ppb

According to the Citizens For a Better Environment website:

Acrylonitrile

The reported value of **.44 ppb** is **ABOVE** the following Levels of Concern:

EPA Region 6 Screening Level According to Region 6 of the US EPA, no health effects are thought to occur below this level.	0.0233 ppb
North Carolina Annual Ambient Air Standard Concentrations above this level are illegal in North Carolina. This level refers to the average level over a period of one year .	0.125 ppb

Acrylonitrile is used in the manufacturing of plastics, latexes, and pesticides. Exposure to it may cause brain tumors, and lung or bowel cancer. It can be absorbed through the the skin. It is a suspected developmental and reproductive toxin. Exposure to acrylonitrile may also damage the heart, lungs, nervous and gastrointestinal systems.

1,3-butadiene

The reported value of **1 ppb ppb** is **ABOVE** the following Levels of Concern:

EPA Region 6 Screening Level According to Region 6 of the US EPA, no health effects are thought to occur below this level.	0.00575 ppb
Louisiana 24-Hour Ambient Air Standard Concentrations above this level are illegal in Louisiana. This level refers to the average level over a 24-hour period.	0.767 ppb
North Carolina Annual Ambient Air Standard Concentrations above this level are illegal in North Carolina. This level refers to the average level over a period of one year .	0.141 ppb

1,3-butadiene is used to make reinforced plastics. It is a carcinogen and a suspected developmental and reproductive toxin. Exposure may damage the heart, lung, gastrointestinal and nervous systems.

2. "Bucket" Samples

The air sampling "bucket" is an inexpensive sampling tool made from a plastic bucket, valve and vacuum. Buckets collect samples of air into Tedlar (non-reactive plastic) bags over a period of 3 to 6 minutes. Bucket samples are analyzed using Method TO-15, which is a more advanced method than the one used for the SUMA canisters. Results become available about 10 days after samples are collected.

Results from the bucket sample are shown as "ppbv," or parts per billion by volume, and then translated into "ppb," or parts per billion. The April 20 bucket sample, tested by Columbia Analytical Services (Simi Valley, California), found:

Ethanol	130 ppbv = 207 ppb
Isopropyl alcohol	4.3 ppbv = 8.97 ppb
Acrylonitrile	6.8 ppbv = 12.5 ppb
Carbon Disulfide	1.7 ppbv = 4.49 ppb
2-Butanone	7.3 ppbv = 18.2 ppb
n-Hexane	2.0 ppbv = 5.98 ppb
Toluene	27 ppbv = 86.3 ppb
Ethylbenzene	1.2 ppbv = 4.42 ppb
m,p-Xylenes	2.0 ppbv = 7.37 ppb
Styrene	37 ppbv = 133 ppb

Summary of Results for

Ethanol

Reported value of **130 ppbv** or **207ppb** is **NOT ABOVE** any of the Levels of Concern.

Acrylonitrile

Reported value of **6.8 ppbv** or **12.5ppb** is **ABOVE** the following Levels of Concern:

EPA Region 6 Screening Level According to Region 6 of the US EPA, no health effects are thought to occur below this level.	0.0233 ppb
Texas Long-Term Screening Level According to the Texas Natural Resource Conservation Commission, no health effects are thought to occur below this level. "Long-term" levels refer to the average exposure level during a year (24 hours for benzene and ethylene dichloride).	3.58 ppb
Louisiana 24-Hour Ambient Air Standard Concentrations above this level are illegal in Louisiana. This level refers to the average level over a 24-hour period.	1.22 ppb
North Carolina Annual Ambient Air Standard	0.125

Concentrations above this level are illegal in North Carolina.
This level refers to the average level over a period of **one year**.

ppb

Carbon Disulfide

Reported value of **1.7 ppbv** or **4.49ppb** is **ABOVE** the following Levels of Concern:

Texas Long-Term Screening Level

According to the Texas Natural Resource Conservation Commission,
no health effects are thought to occur below this level.
"Long-term" levels refer to the average exposure level during a **year** (24 hours for benzene and ethylene dichloride).

**2.50
ppb**

Carbon disulfide is used to make viscose rayon, cellophane and building materials. It is used as a fumigant. Carbon disulfide is a female and male reproductive toxin, according to the California's Office of Environmental Hazard Assessment. It is flammable and toxic by skin contact. Exposure may damage the heart, hormone, gastrointestinal and nervous systems.

2-butanone

Reported value of **7.3 ppbv** or **18.2ppb** is **NOT ABOVE** any of the Levels of Concern.

n-Hexane

Reported value of **2 ppbv** or **5.98ppb** is **NOT ABOVE** any of the Levels of Concern.

Toluene

Reported value of **27 ppbv** or **86.3ppb** is **ABOVE** the following Levels of Concern:

ATSDR Chronic Minimal Risk Level

According to the American Toxic Substances and Disease Registry, there is no appreciable risk of non-cancer health effects from being exposed to concentrations up to this level over periods **longer than one year**.

**79.9
ppb**

Toluene is used in manufacturing perfumes, detergents, gasoline, and medicines. It is a reproductive toxin, according to California's Office of Environmental Health Hazard Assessment. It can damage the liver, kidney, brain, bone marrow and developing fetuses. Exposure to it may also damage the heart, lung, gastrointestinal, immune and nervous systems. Toluene accumulates in the fatty tissues of some aquatic organisms like crabs, herring and eels.

Styrene

Reported value of **37 ppbv** or **133ppb** is **ABOVE** the following Levels of Concern:

Texas Short-Term Screening Level According to the Texas Natural Resource Conservation Commission, no health effects are thought to occur below this level. "Short-term" levels refer to the average exposure level during one hour .	91.8 ppb
Texas Long-Term Screening Level According to the Texas Natural Resource Conservation Commission, no health effects are thought to occur below this level. "Long-term" levels refer to the average exposure level during a year (24 hours for benzene and ethylene dichloride).	9.18 ppb
ATSDR Chronic Minimal Risk Level According to the American Toxic Substances and Disease Registry, there is no appreciable risk of non-cancer health effects from being exposed to concentrations up to this level over periods longer than one year .	59.9 ppb

Styrene is used in plastics and coatings. It is a probable endocrine disrupter, according to Illinois EPA. Styrene may damage the nervous system and memory. Exposure may cause lower birthweight in babies and cause early death of developing fetuses by spontaneous abortion. Exposure to Styrene may also damage the heart, lungs, nervous and gastrointestinal systems.

Isopropyl alcohol

Reported value of **4.3 ppb** or **8.97ppb** is **NOT ABOVE** any of the Levels of Concern.

n-hexane

Reported value of **2.0 ppb ppbv** or **5.98ppb** is **NOT ABOVE** any of the Levels of Concern.

Ethylbenzene

Reported value of **2.0 ppb ppbv** or **7.37ppb** is **NOT ABOVE** any of the Levels of Concern.

Where do the Levels of Concern come from?

[EPA Region 6 Screening Levels](#)

These levels are based on existing studies of chemical health effects. They levels are calculated for residential (as opposed to workplace) exposures. They reflect the *risks* of

exposure to a certain level of the chemical. The levels listed as screening levels correspond to pre-determined levels of risk from exposure: either 1 in a million cancer risk or a "hazard quotient" of 1 for non-cancer effects, whichever corresponds to a lower concentration. These screening levels are not legally enforceable.

[Texas Effects Screening Levels](#)

These levels are based on existing studies of chemical health effects. Below these levels, no adverse health effects are thought likely to occur.

They reflect the experimentally-determined levels at which the chemicals caused adverse effects in study populations (NOAELs or LOAELs) of people or animals, combined with safety factors to account for the differences among human populations and between humans and animals.

"Short-term" refers to an exposure duration of one hour. "Long-term" refers in most cases to a duration of one year; for benzene and ethylene dichloride, it indicates a 24-hour period.

These levels reflect both cancer and non-cancer effects. They are not legally enforceable.

[Louisiana Ambient Air Quality Standards](#)

These levels are legally enforceable standards in Louisiana, developed through Louisiana's regulatory process.

They are based on health effects information about the chemicals: the eight-hour standard modifies occupational exposure levels to be appropriate for residential exposures; the 24-hour standard is based on EPA procedures for calculating cancer risks.

[North Carolina Ambient Air Standards](#)

These levels are legally enforceable standards in North Carolina, developed through North Carolina's regulatory process.

They are based on health effects information about the chemicals.

[ATSDR \(American Toxic Substance and Disease Registry\) Minimal Risk Levels](#)

These levels are based on existing studies of chemical health effects. Exposure at these levels is said to pose "minimal risks" of adverse health effects.

The levels were derived from the experimentally-determined levels at which the chemicals caused adverse effects in study populations (NOAELs or LOAELs) of people or animals, combined with uncertainty factors to account for the differences among human populations and between humans and animals.

"Acute" exposure is defined as up to two weeks, "Intermediate" as between two weeks and one year, and "Chronic" as longer than a year.

These levels reflect only non-cancer health effects. They are not legally enforceable.