

**Michael's Energy Factory  
Paterson, Passaic County, New Jersey  
Fact Sheet #1: September 29, 2008**

***What is 1,4-Dichlorobenzene?***

1,4-Dichlorobenzene is a substance that is colorless to white solid in color. It has a strong, pungent odor that does not occur naturally. When exposed to air, it slowly changes from a solid to a vapor. Most people can smell 1,4-dichlorobenzene in the air at very low levels. 1,4-Dichlorobenzene enters the environment when it is used in mothballs and in toilet-deodorizer blocks.

Dichlorobenzenes do not dissolve easily in water, the small amounts that enter water quickly evaporate into the air. Sometimes, dichlorobenzenes bind to soil and sediment. Dichlorobenzenes in soil usually are not easily broken down by soil organisms. Evidence suggests that plants and fish absorb dichlorobenzenes.

***How could children and staff at MEF have been exposed to 1,4-Dichlorobenzene?***

Michaels Energy Factory is in a building that was used to manufacture mothballs. The children and staff at Michaels Energy Factory are likely to have been exposed to 1,4-dichlorobenzene by breathing vapors from the air.

***How do I know if my child or I was exposed to 1,4-Dichlorobenzene?***

It is presumed that all children and adults who spent time in Michaels Energy Factory were exposed to 1,4-dichlorobenzene.

***How much 1,4-dichlorobenzene did children and staff at Michaels Energy Factory get exposed to?***

How much each person breathed in depends on how much time they spent at Michaels Energy Factory. In general, the people who spent the most amount of time at Michaels Energy Factory will likely have breathed in more 1,4-dichlorobenzene than those who spent less time. It is unknown how much 1,4-dichlorobenzene was in the air before testing was done. People who did not spend time at Michaels Energy Factory, like other family members, are not likely to have breathed in 1,4-dichlorobenzene.

Typical background levels of 1,4-dichlorobenzene range from 0.12 micrograms of 1,4-dichlorobenzene per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ) to  $120 \mu\text{g}/\text{m}^3$ . Recent levels identified in the indoor air at Michael's Energy Factory ranged from  $11 \mu\text{g}/\text{m}^3$  to  $475 \mu\text{g}/\text{m}^3$ .



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### ***How can 1,4-dichlorobenzene affect my health?***

Inhaling the vapor or dusts of 1,4-dichlorobenzene at very high concentrations could be very irritating to your eyes and nose and cause burning and tearing of the eyes, coughing, difficult breathing, and an upset stomach. Dizziness, headaches, and liver problems have also been observed in people exposed to very high levels of 1,4-dichlorobenzene.

There is limited evidence that inhaling very high levels of 1,4-dichlorobenzene may decrease lung function. Animal studies also found that 1,4-dichlorobenzene caused effects in the kidneys and blood.

Children who are exposed to dichlorobenzenes are likely to exhibit the same effects as adults. Children can also be exposed to dichlorobenzenes prenatally, because all three isomers have been detected in placenta samples, as well as through breast feeding. There is no reliable evidence suggesting that dichlorobenzenes causes birth defects, although animal data raise concern for effects of 1,4-dichlorobenzene on a young child's developing nervous system.

### ***How likely are dichlorobenzenes to cause cancer?***

The U.S. Department of Health and Human Services has determined that 1,4-dichlorobenzene may reasonably be anticipated to be a carcinogen. There is no direct evidence that 1,4-dichlorobenzene can cause cancer in humans. However, animals ingesting very high levels in water developed liver tumors.

### ***What is being done to protect children and staff from 1,4-dichlorobenzene?***

The most important way to protect children and staff from breathing in 1,4-dichlorobenzene is to remove them from the building where they were exposed. This occurred on September 29, 2008.

### ***Is there a medical test to show whether I've been exposed to 1,4-dichlorobenzene?***

According to the Agency for Toxic Substances and Disease Registry (ATSDR), several tests can be used to show if you have been exposed to 1,4-dichlorobenzene. The most commonly used tests measure the dichlorophenol breakdown products in urine and blood. The presence of the dichlorophenol breakdown products in the urine indicates a person has been exposed to 1,4-dichlorobenzene within the previous day or two. Another test measures the levels of 1,4-dichlorobenzene in your blood, but this is used less often. These tests require special equipment that is not routinely available in a doctor's office, but they can be performed in a special laboratory. Neither of these tests can be used to show how high the level of dichlorobenzene exposure was or to predict whether harmful health effects will follow.

### ***Who should I talk to if I am concerned about my health or my child's health?***

You should begin by discussing your concerns with your physician or your child's pediatrician. There are clinics that specialize in environmental health problems that your primary care provider may want to contact.

For adults: The Environmental and Occupational Health Clinical Center in Piscataway, NJ sees adults who have been exposed to contaminants occupationally or environmentally. They can be reached at (732) 445-0123.

For children: Pediatricians can contact the Mt. Sinai Medical Center's Pediatric Environmental Health Specialty Unit at (866) 265-6201.

For general questions: Contact the New Jersey Department of Health and Senior Services, Consumer and Environmental Health Services, Indoor Environments Program at 609-584-4003.