

This fact sheet answers the most frequently asked health questions (FAQs) about methyl isocyanate. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: People working in facilities that produce or use methyl isocyanate have the highest risk of being exposed to this chemical. Exposure to low levels of methyl isocyanate can cause eye and throat irritation. People exposed to high levels of methyl isocyanate in the air have experienced severe lung and eye damage. Methyl isocyanate has been found in at least 1 of the 1,585 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is methyl isocyanate?

Methyl isocyanate is a colorless highly flammable liquid that evaporates quickly when exposed to the air. It has a sharp, strong odor.

Methyl isocyanate is used in the production of pesticides, polyurethane foam, and plastics.

What happens to methyl isocyanate when it enters the environment?

When released to air, it will exist solely as a gas. Methyl isocyanate gas is degraded rapidly in the air by reacting with substances commonly found in the air. Methyl isocyanate will also be broken down by moisture from clouds and rainfall. It will only persist in the atmosphere a few hours to a few days before being degraded.

Methyl isocyanate is rapidly (minutes to a few hours) degraded in water into other compounds.

Most of the methyl isocyanate released to soil will be broken down into other compounds upon contact with moisture. Small amounts of methyl isocyanate may evaporate into air.

Methyl isocyanate does not accumulate in the food chain.

How might I be exposed to methyl isocyanate?

Methyl isocyanate has been found in the smoke from tobacco, so people who smoke or breathe second-hand smoke may be exposed to this compound.

You can be exposed to methyl isocyanate by breathing or touching it at workplaces where this compound is produced or used.

People living near facilities which manufacture, store or use the chemical may breathe in low levels of it.

How can methyl isocyanate affect my health?

Methyl isocyanate can be harmful if you breathe it. The effects depend on how much you are exposed to and for how long. Exposure to low levels might cause eye and throat irritation that could cause you to cough or wheeze. Higher concentrations of methyl isocyanate gas could cause your lungs to swell, making it difficult to breathe. This could happen quickly or might not be noticed for a day or two. Exposure to high concentrations could result in severe damage to your lungs that might be fatal. If you were to

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survive severe damage to your lungs, they would probably heal. But, some damage might not be completely repaired.

Long-term exposure to methyl isocyanate could result in long-term lung damage.

If you were to get methyl isocyanate gas or liquid on your skin or in your eyes, you could develop chemical burns. Eye damage could be severe; in some cases, it could be permanent.

You are not likely to come into skin contact with liquid methyl isocyanate. You are also not likely to swallow methyl isocyanate liquid, but if you did, your mouth, throat, esophagus, and stomach could become damaged.

An increased rate of spontaneous abortion was seen in women who were pregnant when they were exposed to methyl isocyanate gas following the explosion of a tank containing liquid methyl isocyanate. But it is not known whether these effects were specifically linked to methyl isocyanate exposure.

How likely is methyl isocyanate to cause cancer?

The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC), and the U.S. EPA have not classified methyl isocyanate as to its carcinogenicity. There is no additional information to determine whether exposure to methyl isocyanate might cause cancer.

How can methyl isocyanate affect children?

There are no studies on the health effects of children exposed to methyl isocyanate. It is likely that the health effects seen in children exposed to methyl isocyanate will be

similar to the effects seen in adults. We do not know whether children differ from adults in their susceptibility to methyl isocyanate.

An increased rate of neonatal death was seen in babies whose mothers had been exposed during pregnancy to methyl isocyanate gas when a tank containing the chemical exploded. But it is not known whether these effects were specifically linked to methyl isocyanate exposure. Animal studies indicate that fetal exposure to methyl isocyanate may result in damage to the fetus.

How can families reduce the risk of exposure to methyl isocyanate?

Most families will not be exposed to significant levels of methyl isocyanate.

Is there a medical test to show whether I've been exposed to methyl isocyanate?

Animal studies indicate that methyl isocyanate could be detected in your blood or urine. However, specific tests for the presence of methyl isocyanate in blood or urine are not generally useful. If you suspect that you may have been exposed to methyl isocyanate, chest x-rays, blood analyses, and breathing tests might show whether the lungs have been injured.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set an exposure limit of 0.02 parts of methyl isocyanate per million parts of workplace air (0.02 ppm) for an 8-hour workday, 40-hour work week.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs™ Internet address is <http://www.atsdr.cdc.gov/toxfaq.html>. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

