

Methyl *tert*-Butyl Ether (MTBE)-ToxFAQs™

What is MTBE?

Methyl *tert*-butyl ether (MTBE) is a flammable, colorless liquid with a disagreeable odor.

MTBE was added to gasoline in the 1980s to increase fuel efficiency and decrease pollution. When MTBE started to be detected in groundwater, several states banned its use in gasoline and it has not been added to gasoline in the United States since 2005.

However, MTBE is still made in the United States and exported to other countries.



MTBE can also be used to dissolve gallstones in patients for which surgical options are too risky. Patients treated in this way have MTBE delivered directly to their gall bladders through special tubes that are surgically inserted. MTBE has not been approved for medical use in the United States since 2015, but is still used as a non-surgical option in some countries.

What happens to MTBE in the environment?

MTBE quickly evaporates from open containers and surface water, so it is commonly found as a vapor in the air. Small amounts of MTBE may dissolve in water and get into underground water. MTBE can quickly move through the soil; therefore, once in the soil, it can also make its way to underground water. MTBE breaks down quickly in the air and it does not significantly build up in plants or animals.

How can I be exposed to MTBE?

When MTBE stopped being added to gasoline, the amount found in the environment dramatically decreased. Most people are therefore not likely to come in contact with this chemical. The most likely way that you could be exposed to MTBE is by breathing contaminated air or drinking contaminated water or living near a hazardous waste site. If your water has MTBE in it, activities such as showering or bathing can expose you to this chemical. Workers who produce MTBE for export may also be exposed.

How can MTBE affect my health?

MTBE is quickly taken in by your body after breathing or eating it. The liver rapidly breaks most of it down and it is released into the urine. Breathing gasoline with MTBE in it has caused some people to experience headaches, nausea or vomiting, dizziness, a feeling of spaciness, and coughing.

Since gasoline contains many chemicals, it is not clear if the effects were due only to MTBE. In other studies, people exposed to low levels of MTBE for a short period of time did not have any of these effects. Studies using animals to look at possible health effects found that animals that breathed high levels of MTBE were less active and showed reduced reflexes and coordination, difficulty breathing, and liver effects.

There is no information on how drinking water or bathing in water that is contaminated with MTBE will affect a person's health. In studies where rats and mice ate high amounts of MTBE, the animals had gastrointestinal irritation and damage to the liver and male reproductive organs.

Since MTBE is no longer added to gasoline in the United States, your risk of exposure is low.

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Can MTBE cause cancer?

There are no studies that show that MTBE causes cancer in people. Breathing high levels of MTBE for a long period of time caused liver cancer in mice. Eating high levels of MTBE for a long period of time caused testicular cancer, lymphomas, and leukemia in rats. Drinking high levels of MTBE dissolved in water for long periods did not cause cancer in mice.

The International Agency for Research on Cancer (IARC) determined that MTBE was not classifiable as to its ability to cause cancer in people. The Department of Health and Human Services and U.S. Environmental Protection Agency (EPA) have not classified MTBE's cancer-causing risk.

Can I get a medical test to check for MTBE?

There are tests available to measure MTBE and its breakdown product in your breath, blood, and urine. MTBE does not stay in your body long, so these tests need to be done soon after exposure (up to 1–2 days). These tests cannot predict whether you will have health problems from the exposure to MTBE. Doctor's offices do not routinely offer these tests. If you think you have been exposed to this or any other chemical, talk to your doctor or nurse or call poison control.

How can I protect myself and my family from MTBE?

If your drinking water is supplied by a public water system, you can contact them for information on MTBE levels in the water. If you have a private well for water, your local health department may be able to tell you if MTBE has been found in water in your area. You may also want to get your water tested by a certified laboratory.

Children should avoid playing near industrial or hazardous waste sites to prevent exposures to chemicals including MTBE.



For more information:

Call **CDC-INFO** at 1-800-232-4636, or submit your question online at
<https://www.cdc.gov/dcs/ContactUs/Form>

Go to ATSDR's Toxicological Profile for MTBE:
<https://www.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=228&tid=41>

Go to ATSDR's Toxic Substances Portal: <https://www.cdc.gov/TSP/index.aspx>

Find & contact your ATSDR Regional Representative at http://www.atsdr.cdc.gov/DRO/dro_org.html