

4,4'-Methylenebis(2-Chloroaniline) (MBOCA) - ToxFAQs™

What is 4,4'-methylenebis(2-chloroaniline) (MBOCA)?

MBOCA is a man-made chemical used to make polyurethane products. The most commonly used form of MBOCA is a pellet of yellow, brown, or tan color. Pure MBOCA is a colorless, crystalline solid. It has no smell or taste.



Examples of products that may contain MBOCA include gears, gaskets, sport boots, roller skate wheels, and shoe soles. Other uses include rolls and belt drives in cameras, computers and copy machines, and wheels and pulleys for escalators and elevators. MBOCA may be present in components in home appliances, and has been used for various military applications. It is also used as a coating in chemical reactions to “set” glues, plastics, and adhesives. Because plastics have many uses, MBOCA is widely used.

What happens to MBOCA in the environment?

MBOCA can enter the environment from manufacturing plants that use MBOCA. MBOCA does not dissolve in water. It sticks strongly to particles in soil and is not likely to evaporate to the air or move into groundwater. MBOCA is broken down by bacteria in the soil, and by sunlight when it is in the air.

MBOCA has been found in some vegetables (like carrots, cucumber, and beans) when these vegetables have been grown in contaminated soil. Rinsing the vegetables with water will not remove MBOCA.

How can I be exposed to MBOCA?

Most people are not likely to be exposed to MBOCA. If you live near a waste site or landfill, this chemical may be in the soil. It is usually not found in drinking water. Vegetables grown in contaminated soil may have this chemical in them, but this is not a likely source for most people.

If you work at a place that uses MBOCA, you may get it on your skin or breathe it in the air.

How can MBOCA affect my health?

There is not very much information on the health effects of MBOCA in people. Some workers may have mild damage to their kidneys. Bladder cancer was also seen in some workers exposed to MBOCA. One person had upset stomach when accidentally sprayed in the face with MBOCA.

MBOCA is used to make polyurethane products. The general population is not likely to be exposed to this chemical.

Animals that ate or had MBOCA put on their skin for a long period of time had damage to stomach, intestines, liver, kidneys, and bladder.

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Can MBOCA cause cancer?

Bladder cancer has been reported in some worker that work in facilities where MBOCA is used. These workers most likely breathed MBOCA in air, or it was on their skin.

Studies in animals have shown eating MBOCA over a long period of time can cause cancer of the lungs, liver, blood, breast, and bladder.

The [U.S. Department of Health and Human Services \(DHHS\)](#) has classified MBOCA as reasonably anticipated to be a human carcinogen (causes cancer in people).

The [U.S. Environmental Protection Agency \(EPA\)](#) has not determined whether MBOCA can causes cancer in people.

The [International Agency for Research on Cancer \(IARC\)](#) has classified MBOCA as carcinogenic to humans.

Can I get a medical test to check for MBOCA?

Laboratory tests can measure MBOCA in the urine. The test is not routinely available at your doctor's office. These tests must be done within a short period after you are exposed because it is broken down quickly by your body. These tests cannot tell you how much MBOCA you were exposed to or if harmful health effects will occur.

How can I protect myself and my family from MBOCA?

Most people do not need to take any special steps to avoid exposure to MBOCA in their daily lives. Do not allow your children to play near a waste site or landfill because MBOCA may be in the soil.

If you work at a place that uses MBOCA, make sure you are following all safety guidelines.

For more information:

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

Go to ATSDR's Toxicological Profile for MBOCA: <https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=996&toxid=209>

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

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

