

METHYL ETHYL KETONE

What is methyl ethyl ketone (MEK)?

Methyl ethyl ketone (MEK) is a colorless liquid with a sharp, sweet odor. MEK (also known as 2-butanone) is a man-made chemical that is also found in nature.

Where can methyl ethyl ketone be found and how is it used?

MEK is produced in large quantities. Nearly half of it is used in paints and other coatings. It is used for these products because it quickly turns into a vapor. It also dissolves in many substances. Other uses are glues and cleaning agents.

In nature, MEK is made by some trees. It is also found in small amounts in some fruits and vegetables. Manmade MEK is released into the air from car and truck exhausts.

How can people be exposed to methyl ethyl ketone?

People who use MEK at work have a good chance of being exposed to it. MEK is used in shoe factories, printing plants, and plastics factories. It is also used in making sporting goods.

You could be exposed to MEK through:

- **Breathing** air when making or using products that contain MEK. Product examples include paints, glues, coatings, or cleaning agents. Breathing MEK can also happen near waste sites polluted with MEK. You can be exposed by breathing cigarette smoke or sniffing glue.
- **Drinking** water from polluted wells near factories where MEK is made or used. Well water near waste sites may contain MEK pollution.
- **Touching** products made from MEK or touching MEK liquid when it is made or used.
- **Eye contact** by splashing it in the eyes at work. If you touch soil polluted with MEK and then rub your eyes, your eyes could be exposed.

How does methyl ethyl ketone work?

If you breathe MEK, at least half of what you breathe in will enter your body. The other half will leave in the air you breathe out and in urine. The amount of MEK that enters your body depends on the amount in the exposure and how long the exposure lasts. MEK does not stay in your body for very long. It will be gone from your system by the next day. It is unknown how much MEK stays in your body if you drink it or touch it.

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How can methyl ethyl ketone affect my health?

People exposed to MEK have nose, throat, skin, and eye irritation. If MEK is inhaled with other harmful chemicals, the damage can be more serious. Animals that breathed or swallowed high levels of MEK had serious health effects, including birth defects, fainting, and death. Rats that swallowed MEK had drooping eyelids and difficulty with muscle movements.

There was no damage to the ability to reproduce. Mice who breathed low levels for a short time showed short-term effects on behavior. Animals that drank water with low levels of MEK for a short time had mild kidney damage. There are no long-term studies with animals breathing or drinking MEK.

MEK has not been named as a cancer-causing agent.

How is methyl ethyl ketone poisoning treated?

There is no treatment for methyl ethyl ketone. Treatment depends on the type of exposure.

What should I do if exposed to methyl ethyl ketone?

- **If you eat or drink methyl ethyl ketone**, call a doctor or Poison Control Center right away. You should try to vomit by taking ipecac syrup, a syrup that makes you vomit. It is available at most drug stores. If you do not throw up in 10 to 20 minutes, repeat the water and ipecac. Continue to throw up until all fluid is clear. Drink lots of water. Get medical help right away.
- **If you touch methyl ethyl ketone**, take off your clothes. Wash yourself with soap and water.
- **If you get methyl ethyl ketone in your eyes**, flush with clean water for up to 15 minutes. Get medical help right away.

What factors limit use or exposure to methyl ethyl ketone?

At work, safe work methods limit exposure. Have a source of fresh air and a ventilation system. Breathing protection should be provided. Wear protective clothing and safety glasses. If you live near a waste site that may contain methyl ethyl ketone, avoid contact with the soil. Drink bottled water if well water is polluted.

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Is there a medical test to show whether I've been exposed to methyl ethyl ketone?
Exposure to MEK or its breakdown products can be measured in the blood, breath, and urine. These tests are useful only for recent exposure, since MEK and its breakdown products leave the body fast.

Technical information for methyl ethyl ketone

CAS Number: 78-93-3

Chemical Formula: C₄H₈O

Carcinogenicity (EPA): MEK has not been evaluated for carcinogenicity.

MCL (Drinking Water): There is no MCL established for MEK.

OSHA Standards: The Permissible Exposure Limit (PEL) for an eight-hour day, 40-hour week is 200 parts per million of air (590 milligrams per cubic meter of air).

NIOSH Standards: 200 parts per million of air (590 milligrams per cubic meter of air).
IDLH 3,000 ppm.

ACGIH: 200 ppm Threshold Limit Value (TLV)

Resources

Agency for Toxic Substances and Disease Registry (ATSDR). 2020. *Toxicological profile for MEK*. Atlanta, GA: U.S. Department of Health and Human Services
<https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=343&tid=60>

American Conference of Governmental Industrial Hygienists (ACGIH). 2003. *Guide to Occupational Exposure Values*. Cincinnati, OH.

NIOSH Pocket Guide to Chemical Hazards. 2003. Atlanta, GA: U.S. Department of Health and Human Services.

New Jersey Department of Health and Senior Services, Hazardous Substances Fact Sheet – Meth Ethyl Ketone, <http://www.nj.gov/health/eoh/rtkweb/documents/fs/1258.pdf>

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