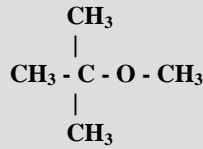


## MTBE Fact Sheet



### MTBE Fact Sheet

#### 1. What is MTBE?

MTBE is shorthand for methyl *tertiary*-butyl ether. It was first used in the late 1970's in concentrations as high as 2 to 7 percent (volume/volume) as a replacement for lead to boost octane. More recently, MTBE has been used at concentrations of 11 to 15 percent in "oxygenated" and "reformulated" gasoline.

The 1990 Clean Air Act Amendments require areas that violated the national ambient air quality standards for carbon monoxide (typically a winter problem) or ozone (typically a summer problem) to use oxygenated or reformulated gasoline, respectively, during the problem months.

#### 2. Is MTBE Gasoline Used in Oregon?

The Oregon Department of Environmental Quality (DEQ) does not require that MTBE be used in Oregon. Reformulated gasoline is not needed to maintain compliance with ozone standards in Oregon. Although some areas of the State rely on oxygenated fuels to maintain compliance with carbon monoxide standards during the winter months, ethanol rather than MTBE has been used to meet the requirements of the 1990 Clean Air Act.

MTBE has been detected in our State's gasoline supply. Levels measured so far are generally quite low; a couple percent or less. Therefore, it appears that MTBE may be entering Oregon as a residual component of gasoline from states such as California that have used MTBE extensively as a key element of their air quality strategy. Or, the low levels of MTBE may have been added to maintain adequate octane levels.

#### 3. What Happens to MTBE when it enters the Environment?

MTBE quickly evaporates from open containers and surface water, so it is commonly found as a vapor in the air. MTBE can be broken down quickly in the air by sunlight. MTBE also can return to earth in precipitation as snow or rain.

MTBE is very soluble in water. It is also very mobile in soils and, if released to the ground, may get into groundwater. Once in groundwater, MTBE is difficult to remove and may remain there a long time. It also is very mobile in groundwater and has been found at cleanup sites in Oregon as far away as ¾ mile from where it was spilled. MTBE does not appear to build up significantly in plants and animals.

#### 4. Is MTBE Impacting Oregon's Environment?

DEQ has found groundwater contaminated by MTBE due to gasoline leaks. Although the MTBE contamination is severe enough in a couple locations to be a major concern, it is generally detected at much lower levels than have been found in California or New York.

In a recent study conducted by DEQ and the Oregon Health Division water samples were collected from 43 public drinking water systems that use wells located within ¼ mile of a gasoline underground storage tank. The study also sampled 5 drinking water systems that derive water from lakes used for motorized watercraft recreation. MTBE was detected in only one sample and at a very low concentration. The public drinking water supplies in two communities are known to be impacted by MTBE and remedial measures are being taken.



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## 5. What are the Health Threats from MTBE?

Laboratory studies on rats and mice suggest that drinking MTBE contaminated water at concentrations greater than several thousand parts per billion (ppb) may cause gastrointestinal irritation, liver and kidney damage, and nervous system effects. Breathing MTBE vapors may also cause nose and throat irritation.

Exposure to large amounts of MTBE has been shown to cause cancer in laboratory animals, and it is possible MTBE could cause cancer in humans. The U.S. Environmental Protection Agency (EPA) is performing more studies to better understand the potential cancer effects of MTBE.

MTBE has a very unpleasant taste and odor, and these properties can make contaminated drinking water unacceptable to the public. To avert these aesthetic effects, EPA has issued a Drinking Water Advisory for MTBE recommending that concentrations in drinking water not exceed 20 to 40 ppb. EPA believes these low levels are protective of human health.

## 6. Does DEQ have a Cleanup Level for MTBE?

DEQ's recently completed guidance document, *Risk-Based Decision Making for Remediation of Petroleum-Contaminated Sites*, specifies a 20 ppb cleanup standard for MTBE in water that is used for drinking. This level is based on taste and odor and was derived from the Environmental Protection Agency's drinking water advisory of 20 to 40 ppb.

## 7. What Next?

The DEQ, Oregon Health Division, and Oregon Department of Agriculture are working together to better assess the presence and impact of MTBE in Oregon. To accomplish this we are:

- continuing to monitor for MTBE in groundwater at leaking underground storage tank sites;

- continuing to identify potential sources of MTBE contamination as part of the source water assessments for each public water system;
- continuing to monitor motor fuel quality and document the occurrence of MTBE in Oregon's fuel supply.

The EPA is assessing the problems relating to the use of MTBE and it is likely that EPA will establish a secondary drinking water standard for MTBE in the near future. EPA also is seeking a ban or phase out of MTBE as a fuel additive.

DEQ will continue to watch developments carefully and incorporate new information into our efforts as it becomes available.

## 8. Where do I get More Information on MTBE?

If you have specific questions about your drinking water, you should contact the agency or organization that provides your drinking water. They are required by Federal and State law to monitor the quality of their drinking water and provide this information to their customers.

For general information about MTBE, you can contact Merlyn Hough with DEQ Tanks Program at 1-800-844-8467 or Kevin Parrett with DEQ Cleanup Program at 1-800-452-4011. You may also get information at our internet site at <http://www.deq.state.or.us>

For general information about drinking water, contact the Oregon Health Division at 971-673-0405 or go to their internet site at: <http://oregon.gov/DHS/ph/dwp>

For general information about motor fuel testing, you can contact the Oregon Department of Agriculture, Measurement Standards Division, at 503-986-4670 or go to their internet site at: [http://www.oregon.gov/ODA/MSD/motor\\_fuel\\_intro.shtml](http://www.oregon.gov/ODA/MSD/motor_fuel_intro.shtml)

The following internet sites also have excellent information on MTBE:

<http://www.epa.gov/oust/mtbe/index.htm>  
<http://www.atsdr.cdc.gov/tfacts91.html>

