

MICROFILM DIVIDER

OMB/RECORDS MANAGEMENT DIVISION
SFN 2053 (2/85) 5M



ROLL NUMBER

DESCRIPTION

2346

2005 SENATE TRANSPORTATION

SB 2346

2005 SENATE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. SB 2346

Senate Transportation Committee

☐ Conference Committee

Hearing Date 2-04-05

Tape Number	Side A	Side B	Meter #
1	x		35-1785
1		x	3755-5100
Committee Clerk Signature <i>Mary K. Manson</i>			

Minutes:

Chairman Trenbeath opened the hearing on SB 2346 relating to the sale of gasoline containing methyl tertiary butyl ether.

Senator Lindaas (District 20) See attached testimony in support of SB 2346.

Senator Warner asked if the federal government is acting to ban this in any way.

Senator Lindaas answered that he understood there is some action but he hasn't been able to trace it down.

Senator Trenbeath noted that he has seen a map of the United States indicating those states that have not banned but have limited the use to a very small percentage. Asked Sen. Lindaas to address that.

Senator Lindaas said that, in some cases they recognize the danger of this material and have taken it on themselves to use some other additive.

Senator Espegard asked what MTB was.

Senator Lindaas said that it is methyl tertiary butyl ether.

Representative Aarsvold (District 20) Testified in support of SB 2346 and handed out a packet of information for the record. According to the June 2004 data, he reported that there are some 20 states that have banned the use of MTB as a fuel additive. Some are long standing bans, some are recent, and some are in the process. His knowledge of MTBE began several years ago when a group of farmers in Trail and Steele Counties attempted to put together an ethanol facility. The petroleum industry apparently became concerned about ethanol being the additive of choice when it came to replacing lead in the fuel. (Meter 460) MTBE then became the industries response to that additive. It is a petroleum derived additive and those in the ethanol business were aware of the potential complications. It did have some carcinogenic qualities about it.

MTBE has since been found in ground water in many states and it was that reason that they have chosen to outlaw MTBE as a fuel additive. The ethanol industry has gained significant status since the MTBE was put into the fuel and now has become the environmentally friendly product that will be used by most retailers and wholesalers of petroleum. And it will prove to be an adequate replacement and an environmentally friendly replacement to the MTBE product.

Senator Espegard asked if MTBE is used at this time.

Rep. Aarsvold said he would prefer the industry respond to that question.

Senator Trenbeath asked if he had any comment on the levels other states have limited MTBE to.

Rep. Aarsvold (Meter 635) said his observation would be that during certain times of the year, particularly winter, when the law requires oxygent in the fuels to offset smog, there is not enough

of the ethanol product available to put into the fuels so, as a consequence, they are put in a position of having to use another product. That has been MTBE on occasion.

There was no testimony in opposition to SB 2346.

Russ Hanson (ND Petroleum Marketers Association) He did not have a position on the bill. He appeared before the committee to offer information that he had received from the national level that there is pending federal legislation to ban MTBE but it is probably 10 years out. He provided the committee with a handout which outlines, state by state, the states that have a limitation of a certain level of MTBE. (Meter 800) He said the most common denominator of the states that have this is the .5% .

Senator Trenbeath asked if it would have to be purposely put in the fuel.

Russ Hanson said he believed so.

Senator Espegard asked about the liability issue.

Russ Hanson said he wasn't sure about the liability. He thought a big concern was what it did to the ground water and the health effects, as well.

Senator Mutch asked if there are any instances in ND or any place where damage has been done by this additive being in the fuel.

Russ Hanson said he had spoken to the people at the refinery to ask if it had been the practice to use MTBE as an additive. They indicated it had not.

Ron Ness (ND Petroleum Council) Appeared in opposition to SB 2346 on the mere fact that this product is not sold in ND. It never has been to his estimation. He didn't know if there was a need for this legislation but he proposed an amendment in the event the committee felt a need to pass the bill. It makes trace amounts of MTBE not illegal. (Meter 1035)

Senator Warner asked what the normal level of this chemical is that is being used in fuel.

Ron Ness said he didn't know the answer. (Meter 1118) It has never been an issue in ND.

Senator Warner asked if this is always an additive and not a byproduct of the manufacture of gasoline.

Ron Ness said this is an additive to gasoline that was created in relation to EPA and the Clean Air Act. The residual effect can occur that there would still be some left in a tanker or truck.

Senator Bercier asked how much of this is coming into the state.

Ron Ness said he was not aware that it has ever come into the state.

Senator Bercier asked how we would know if this came into the state. By disclosure of some kind?

Ron Ness said he was not aware that there are any disclosure requirements.

Senator Mutch said, if it wasn't an acceptable product, it wouldn't even be allowed into the pipeline system.

Ron Day (Environmental Health and Safety Manager of Tesoro Refinery) (Meter 1460) He clarified some points for the committee. (1) MTBE is a purposely manufactured chemical. Typically a 10% blend. (2) MTBE has to be part of material safety data sheet for that product. There could potentially be trace amounts but it wouldn't be intentionally brought into the state.

Senator Mutch asked if, to his knowledge, the refineries in Canada are using MTBE.

Ron Day said that, to his knowledge, they are not. But at any time, they may choose to and that could be a means of coming into the state. It would have to be identified on a material safety data sheet with the transport of that material.

The hearing on SB 2346 was closed.

(Meter 1660) The hearing on SB 2346 was reopened.

Gary Bereth (ND State Dept. of Health) They are not aware of any cleanup sites that MTBE has been a focus of their attention on. They do some limited sampling at some of their release sites and they have detected traces of MTBE at some of these sites but they are low level concentrations. They have never been a concern as to the cleanup.

The hearing on SB 2346 was closed.

(Side B Meter 3755)

Chairman Trenbeath opened SB 2346 for discussion.

Senator Warner motioned to accept amendment proposed by Ron Ness.

Seconded by **Senator Bercier**.

Discussion on the amendment which was actually a hog house. This would only allow for trace amounts.

The amendment was accepted on a voice vote.

Senator Bercier motioned a **Do Pass as Amended** on SB 2346. Seconded by **Senator Warner**.

Discussion followed as to the allowance that MTBE could be in the fuel as a residual from the pipeline or tanker. If it is to be made illegal, then it is reasonable to expect to define what the threshold is. There was also some discussion on additives in the refining of fuels.

Roll call vote 5-0-1. **Passed**. Floor carrier is **Senator Trenbeath**.

JB
2-85

PROPOSED AMENDMENTS TO SENATE BILL NO. 2346

Page 1, line 6, after "A" insert "person may not sell, offer for sale, supply, or offer for supply gasoline that contains methyl tertiary butyl ether in quantities greater than five-tenths of one percent by volume. However, a person may ship gasoline containing methyl tertiary butyl ether within the state for disposition outside the state, including storage coincident to shipment."

Page 1, remove line 7

Renumber accordingly

Date: 2-4-05
Roll Call Vote #: 2346

2005 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO _____

Senate TRANSPORTATION Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number 50778.0101 Title .0200

Action Taken Do Pass as Amended

Motion Made By Sen. Bercier Seconded By Sen. Warner

Senators	Yes	No	Senators	Yes	No
Senator Espegard	✓		Senator Bercier	✓	
Senator Mutch	✓		Senator Warner	✓	
Senator Nething					
Senator Trenbeath, Chairman	✓				

Total (Yes) 5 No 0

Absent 1

Floor Assignment Senator Trenbeath

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2346: Transportation Committee (Sen. Trenbeath, Chairman) recommends AMENDMENTS AS FOLLOWS and when so amended, recommends **DO PASS** (5 YEAS, 0 NAYS, 1 ABSENT AND NOT VOTING). SB 2346 was placed on the Sixth order on the calendar.

Page 1, line 6, after "A" insert "person may not sell, offer for sale, supply, or offer for supply gasoline that contains methyl tertiary butyl ether in quantities greater than five-tenths of one percent by volume. However, a person may ship gasoline containing methyl tertiary butyl ether within the state for disposition outside the state, including storage coincident to shipment."

Page 1, remove line 7

Renumber accordingly

2005 HOUSE TRANSPORTATION

SB 2346

2005 HOUSE STANDING COMMITTEE MINUTES

BILL NO. SB 2346

House Transportation Committee

☐ Conference Committee

Hearing Date March 10, 2005

Tape Number	Side A	Side B	Meter #
1	X		9.2-29.3
Committee Clerk Signature <i>De Lou Albrecht</i>			

Minutes:

Acting Chairman Hawken opened the hearing on SB 2346 A Bill for an Act to create and enact a new section to chapter 19-10 of the North Dakota Century Code, relating to the sale of gasoline containing methyl tertiary butyl ether.

Senator Lindaas: (See attached testimony #1)

The senate put in an amendment that would allow only trace amounts of the material in the gasoline mainly due to the fact that if there has been gasoline used to haul fuel, it might of had some of that in there and they don't want to just condemn the whole thing.

Rep. Delmore(11.6) I noticed in the senate they also added a provision from the original bill that they could ship gasoline through the state with this disposition etc. How often do we have this material that would go through the state?

Senator Lindaas: That is an unknown to me.

Senator Trenbeath:(12.3) In support of this bill. This is the substance the federal government was on the verge of banning and the only reason it has not been banned was a hang up over whether or not they were going to hold the manufacturer of this liable for the damages they already had done in California where it had contaminated the ground water. The obvious replacement for MTBE is ethanol. The amendment was put on because of pipelines and tankers and things get used across the country and there may be trace amounts left in. I doubt if there is any being shipped across the state. The use of the substance is on the decline since this thing in California so I am in support of the bill as amended and it is before you.

Rep. Weiler (13.4) Question about the last line, however it person may ship gasoline containing MTBE within the state for disposition outside the state. Is there any good use for this stuff?

Senator Trenbeath: I really don't know. I suspect once it is banned by the government, there will be not alternative use for it. I think that may be addressing shipments that may originate in Canada and come through. Or originate here and go into Canada.

Rep. Weiler(14.1) So it is OK for someone to ship it outside the state?

Senator Trenbeath: There is a risk associated with that. If you over turn a tanker in ND then you have some big problems. It becomes a problem whether we let you transport it on our interstate system because it is a federal system.

Rep. Ruby (14.4) You talked about allot of shipments just have traces of these small amounts. I guess that indicates it is not very widely used in most areas and in SD and some of the other states around us. Is it being used much in the state?

Senator Trenbeath: Actually it is not being used at all. We are putting a bill in to ban something that presently isn't being used.

Senator Trenbeath: This is as much an ethanol promotion bill as it is an MTBE use prohibition bill.

Rep. Price (15.1) In the article that was passed out it mentions rural water systems and they are asking that the state require testing for this ban and underground fuel tanks. Is that something we should be concerned about?

Senator Trenbeath:(15.4) The industry that will testify will be better able to address that. My own feeling is that it has not been used in the state of ND to date and so it is probably not warranted.

Rep. Aarsvold:(15.9) (See attached testimony #2)That was about the time the petroleum industry decided a portion of their market might be affected by supplementing gasoline with ethanol. At that time, of course, even today, a 10% blend of ethanol accomplishes what lead and other chemicals use to do with gasoline. They were concerned about the 10% market so they put their folks to work in the lab and came up with a refined petroleum product that is called MTBE and as a consequence of that I have been able to write off a significant portion of my future income based on my income loss of investment that I had in the facility.

Rep. Schmidt(18.2) Rep. Aarsvold, I see that the state that didn't ban it and they voted on it was Wisconsin in 1999. Shows the Green Bay Packer fans aren't as smart as they use to be.

Russ Hanson, NDPMA Ron Ness and I are in support of this bill. (See attached handout #3).

This is an 04 map so there are now 20 some states are on line now. To our knowledge the one refinery in the state has not produced gasoline with MTBE nor has any dealer knowingly distributed it to their tanks. Ethanol has been the booster in this state and dealing with pending legislation, we believe there will be a band in that. We are not aware of any problems there. The

EPA has issued some really strong guidelines on tanks; double wall lines and the EPA does random surveys.

Rep. Price(20.7) Mr. Hanson, to your knowledge our refinery has never put the product in? My second question is where is Manitoba and Saskatchewan on this? There is suppose to be one truck stop bringing fuel in daily out of Canada.

Russ Hanson: Yes, to your first questions. Your second question is I am not sure, but we will find out.

Rep. Ruby(21.2) Earlier you said it has never been used in this state. If we didn't pass this sometime it would be? Or are we trying not to use this anymore.

Russ Hanson: The answer is yes to both. We have never knowingly used it and ethanol has always been the buster for it. With all the known health problems with MTBE and things I don't see us using it.

Rep. Owens (21.8) This isn't really a ban, is it? We are just limiting it by volume.

Russ Hanson: Correct, it would allow trace amounts.

Rep. Owens (22.2) It also helps with the octane levels. It busts the octane levels from 87, to 89; to a 91. My next question, what about these additives we can get or buy in stores. Do they contain any of this which would alter the buy volume every time you poured that into the tank?

Russ Hanson: The reason you should burn ethanol fuel is that you don't need additives to put into the tank. I do not believe you buy a can of heat as an additive at the service station would have that. That may be more alcohol based.

Rep. Ruby (23.2) I don't know if he was just talking about heat. Because that is something to keep our moisture. There are octane busters that are used in racing and high performance vehicles; does that contain any of this?

Russ Hanson: I don't know. I don't think so.

Ron Ness: Petroleum Counsel. 1991 Clean Air Act required areas of non-attainment with issues relating to smog, such as California, Milwaukee, Chicago, St. Louis; areas with dense population, to have a high octane. MTBE was developed in Texas and Louisiana. You would not want to ship this additive to North Dakota because it is a prohibitively expensive additive to your gasoline. That is why most of these states in and around us other than the Minneapolis area itself, MTBE would never be used because it would add cost to your product. You can see on the map that trace amounts have to be allowed to insure no matter what you are transporting it has been sold in every gallon of gasoline in California for 20 plus years so I think what you are doing here is passing a law that is putting us in line with what other states are doing.

Glenn Elliot, Mandan, ND: Most of everything I was going to say has already been covered. Rep. Owens and Rep. Ruby brought up questions earlier about the market additives. Let's not let the perfect become the enemy of the good. Most of what you would see of use of MTBE is formulating in gasoline. You did hear testimony on health affects earlier. From what I understand that dates back to 1998 with University of California Davis did work with the direction of the California legislature that identified the problems with MTBE as far as with the contamination of surface and ground. In concentrations, in the area of 5 parts per billion, MTBE can make water absolutely undrinkable simply because you cannot stand the odor and the taste.

Page 6
House Transportation Committee
Bill Number SB 2346
Hearing Date March 10, 2005

Five parts per million would be taking 13 gallons of water and put five drops in it. Five parts per billion is taking 13,200 gallons of water in it. You do not need allot of this stuff to effectively render a water supply unusable. In the case of ground water it does not move constantly. The compound is especially a concern. I request the committee do a do pass vote on this bill.

Acting Chairman Hawken: Is there any opposition to SB 2346?

Hearing is closed (29.3)

2005 HOUSE STANDING COMMITTEE MINUTES

BILL NO. SB 2346

House Transportation Committee

☐ Conference Committee

Hearing Date March 17, 2005

Tape Number	Side A	Side B	Meter #
2	X		15.5-18.4
Committee Clerk Signature <i>DeLoe</i>			

Minutes:

Chairman Weisz reopened hearing on SB 2346.

Rep. Ruby(16.5) I am not in support of using this product. My thought is if it has never been used here; and never planned on being used here I am just going to vote against it. Why would be ban something it doesn't matter if it is not used. My no vote does not mean I want this product.

Rep. Meyer I think it is important to have this one the books so we never have this problem.

This is such a serious thing and gravitates toward water and we need to get rid of it. When our gas prices get to \$2.20 and he sells it us to ND because allot of this is produced in Oklahoma. So he would know he can not sell that here.

Motion Made by Rep. Vigasaa Seconded By Rep. Owens

Do Pass 13 Yes 1 No 1 Absent Carrier: Rep. Meyer

Done (18.4)

Date: 3-17-05
Roll Call Vote #:

2005 HOUSE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 582346

House Transportation Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken As Pass

Motion Made By Rep. Vigasaa Seconded By Rep. Owens

Representatives	Yes	No	Representatives	Yes	No
Rep. Weisz - Chairman	✓		Rep. Delmore	✓	
Rep. Hawken - Vice Chair.	<u>absent</u>		Rep. Meyer	✓	
Rep. Bernstein	✓		Rep. Schmidt	✓	
Rep. Dosch	✓		Rep. Thorpe	✓	
Rep. Iverson	✓				
Rep. Kelsch	✓				
Rep. Owens	✓				
Rep. Price	✓				
Rep. Ruby		✓			
Rep. Vigasaa	✓				
Rep. Weiler	✓				

Total (Yes) 13 No 1

Absent 1

Floor Assignment Rep. Meyer

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE (410)
March 17, 2005 12:53 p.m.

Module No: HR-49-5260
Carrier: S. Meyer
Insert LC: . Title: .

REPORT OF STANDING COMMITTEE

SB 2346, as engrossed: Transportation Committee (Rep. Welsz, Chairman) recommends DO PASS (13 YEAS, 1 NAY, 1 ABSENT AND NOT VOTING). Engrossed SB 2346 was placed on the Fourteenth order on the calendar.

2005 TESTIMONY

SB 2346

Senate Bill 2346

Testimony of Senator Elroy Lindaas
February 4th, 2005

Senator Trenbeath and Senate transportation committee members. For the record my name is Elroy Lindaas, State Senator from District 20, comprised of Traill County and parts of Steele, Cass and Barnes Counties. I appear before you today as prime sponsor of SB 2346.

The handouts I have provided will further explain why the substance MTBE should be outlawed in North Dakota, just as it is in many other states. MTBE has been used to raise the octane level in gasoline for a number of years and more recently has been discovered to contain dangerous pollutants that effect soil and ground water.

I invite you to look at the newspaper article with regard to the South Dakota law. According to the information MTBE is highly toxic and just a few ounces can contaminate several million gallons of water. It also states that an automobile accident could threaten an entire aquifer. On top of that it is nearly impossible to clean up.

One of the handouts shows what action has been taken in other states and I think it is imperative that we act now to avoid more serious consequences in the future.

On a very positive note, Ethanol can and will be a more environmentally sound additive that will benefit everyone.

I thank you for your attention and I will attempt to answer any questions you may have.

STATE LEGISLATION ON MTBE ADDITIVES IN REFORMULATED GASOLINE

Alabama	Little or no activity.
Alaska	Little or no activity.
Arizona	FINAL ACTION. Arizona will ban the MTBE no later than 180 days after California completes its phaseout of MTBE on December 31, 2002, according to Senate Bill 1504 (HB 2386), which was recently approved by the Governor.
Arkansas	Little or no activity.
California	FINAL ACTIONS. In March 1999, California became the first state to officially ban MTBE when Governor Gray Davis issued an executive order for a three-year phase out of the gasoline additive. California SB 989 codified the governor's executive order for the phase-out of MTBE. The legislature also required that refiners submit quarterly reports to detail the amount of MTBE used in gasoline and how the amount compares to last year's use. MTBE has shown up in hundreds more underground fuel links in and water quality experts have raised their estimate of the number of MTBE spills from 4,500 to nearly 6,600, a nearly 32 percent increase over the past year.
Colorado	FINAL ACTION. Colorado's Governor recently signed SB 190 into law, which mandates a phasing out of MTBE by April 30, 2002. In areas where MTBE is not currently sold or stored - which includes Denver and the rest of the Front Range of the Rocky Mountains - the additive will be banned immediately.
Connecticut	FINAL ACTION. SB 571 (signed by Governor 6/1/2000) will phase out the use of MTBE as a gasoline additive over a five-year period, and increase penalties for the unlawful discharge of gasoline.
Delaware	The legislature is studying the groundwater problem, but as of now, no resolutions have passed or been proposed to phase out MTBE. (Source at the Department of Environmental Control)
District of Columbia	Little or no activity.
Florida	Florida has been monitoring its public water system for MTBE since the early 1990's; MTBE has not yet been found in amounts exceeding the EPA guidelines. No MTBE legislation has passed as of the present.
Georgia	Little or no activity.
Hawaii	FINAL ACTION. The Governor recently vetoed Hawaii HB 3021 (passed House and Senate) which would have banned MTBE by July 1, 2001.
Idaho	Little or no activity.
Illinois	FINAL ACTION. A proposal to ban MTBE was blocked on 4/11/2000 in an Illinois House committee. Rep. Bill Mitchell, (R-Forsyth), proposed the original amendment to Senate Bill 1046 that would have banned MTBE in Illinois by 2001.
Indiana	PENDING ACTION. Other resolutions have urged Congress and the executive branch to take immediate steps to ban MTBE. Little or no activity.

July 2000

Iowa	FINAL ACTION. Iowa HB 2294 died in committee. It would have prohibited the sale of MTBE, but would have permitted the sale or storage of an "incidental amount" of MTBE if the Department of Natural Resources found no threat to public health/ environment. FINAL ACTION A resolution has been considered to urge Congress or the state's congressional delegation to change the Clean Air Act to phase out MTBE. Little or no activity.
Kansas	FINAL ACTION. House Resolution 151, passed 3/23/2000, recognized the benefits of ethanol as an effective alternative to MTBE.
Kentucky	FINAL ACTION. HB 849, which would have banned the use of MTBE, died in committee with the end of the legislative session. FINAL ACTION. Senate Joint Resolution 68, which urged KY's congressional delegation to support changes to the Clean Air Act that would allow the state to opt out of the federal RFG program, passed in the Senate, but died in committee in the House.
Louisiana	Little or no activity.
Maine	FINAL ACTION. Maine has not participated in the RFG program since 1999 because of concerns about a state study that detected MTBE in 15 percent of drinking water supplies. Although legislation to ban MTBE was proposed, it was tabled because the MTBE contamination of water improved rapidly. FINAL ACTION. Legislation has been enacted creating a state Task Force to investigate the contamination of water supplies MTBE and to examine potential health effects. (HB 823) Environmental officials have found the gasoline additive MTBE in 66 of the 1,060 public water systems in Maryland they investigated (03/08/2000).
Maryland	FINAL ACTION. Resolution against MTBE failed in the legislature. Although no ban is likely to be proposed, the Dept. of Environmental Affairs is working with regional groups to monitor water contamination and to eventually phase out MTBE additives. NESCAUM, a coalition of New England regions, is the principle organization working to monitor the situation.
Massachusetts	FINAL ACTION. On June 15, 2000, Michigan's Governor signed into law HB5570, which bans MTBE beginning 1/1/2003, and directs the department of environmental quality to study the environmental and health effects of MTBE.
Michigan	FINAL ACTION. Minnesota HB 3131, a complete ban on MTBE, died in committee at the end of this legislative session. However, SB2946, which instead limits MTBE content in gasoline to 1/3 of one percent by weight, and requires that MTBE be phased out by July 2005, was signed into law. (Codified in Chapter 434)
Minnesota	Little or no activity.
Mississippi	FINAL ACTION. Concurrent resolutions in the legislature urged the governor to exercise the state's right to opt out of the RFG program until a safe substitute for MTBE is identified (e.g. HCR 32, HCR 14).
Missouri	

	Thus pressed by the Republicans, the Governor issued an executive order which will ban MTBE after the EPA and Congress meet certain conditions. These conditions include: a requirement that the EPA provide a waiver for Missouri from provisions in the Clean Air Act and the reformulated gasoline program (RFG); a requirement that Congress prevent price increases or a decline in air quality that could result from an MTBE ban; and assurance from Congress that Missouri will not lose federal highway funds because of its ban of MTBE.
	FINAL ACTION. SB 966 (HB 1801), which was to codify the Governor's ban on MTBE, died in committee at the end of the legislative session.
	PENDING ACTION. Missouri lawmakers are also urging quick action at the federal levels to ban MTBE and to promote ethanol as a replacement. (03/29/2000)
Montana	Little or no activity.
Nebraska	FINAL ACTION. The much-talked-about ethanol mandate in Nebraska appears to be finished for this year, and thus Gas station owners will not be required to sell an ethanol blend. The ethanol mandate instead evolved into a ban of MTBE (LB 1234), which was approved by the Governor on 4/12/2000.
Nevada	Little or no activity.
New Hampshire	FINAL ACTIONS. In 1999, New Hampshire signed three actions on MTBE into law: HB 592 established a legislative study committee to investigate actions for reducing the effects of MTBE on surface and groundwater; HJR 9 urges the U.S. Congress and the U.S. Environmental Protection Agency to eliminate federal requirements for oxygenates; SB 70 requires that the commissioner of environmental services limit the concentration of MTBE allowed in gasoline and that the commissioner seek waivers from EPA for MTBE.
	SB 71, a complete ban on MTBE, passed the Senate in 1999; however, its House companion bill failed to pass early this year.
	New Hampshire has also introduced legislation that would permit the state to enter into discussions with other northeastern states about implementing a regional gasoline that contains less MTBE.
New Jersey	PENDING ACTION. New Jersey (AB 218, AB 1667, AB 1923, SB 527) has several pieces of legislation that would prohibit MTBE use. All are currently in Committee, and will carry over to the next legislative session.
New Mexico	Little or no activity.
New York	FINAL ACTION. Governor Pataki (R-NY) signed a bill banning MTBE by Jan. 1, 2004. The New York ban, drafted partly in response to contamination reported on Long Island and upstate, will prohibit the use, sale, and importation of MTBE beginning January 1, 2004 under penalty of up to \$10,000, according to Pataki's office. (5/24/2000)
	PENDING ACTION. Legislation has also been proposed to direct state agencies to study MTBE contamination of water supplies and to examine its health effects.
North Carolina	Little or no activity.
North Dakota	Little or no activity.
Ohio	Little or no activity.
Oklahoma	Little or no activity.
Oregon	Little or no activity.
Pennsylvania	FINAL ACTION. In June 1999, Pennsylvania chose to no longer participate in the federal RFG program, citing MTBE health effects as its primary reason. SB 989 codified the governor's executive order for the phase out of MTBE. Studies found 73 percent of Pennsylvania's drinking water supplies were contaminated with MTBE.

Rhode Island	FINAL ACTION. House Resolution 7999 (passed 06/07/2000) requests that the federal government lift the requirement for 2% oxygenate levels in reformulated gasoline. PENDING ACTION. Legislation has been proposed to direct state agencies to study MTBE contamination of water supplies and to examine its health effects.
South Carolina	Little or no activity.
South Dakota	FINAL ACTION. South Dakota passed legislation (SB 1124 signed by the governor) that limits MTBE content in gasoline to no more than 2 percent by weight. PENDING ACTION. A proposed bill, South Dakota HB 1132, would prohibit MTBE use entirely.
Tennessee	Little or no activity.
Texas	Little or no activity.
Utah	Little or no activity.
Vermont	Little or no activity.
Virginia	FINAL ACTION. HB 909 was recently enacted (4/09/2000), which directs state agencies to study MTBE contamination of water supplies and to examine its health effects.
Washington	Little or no activity.
West Virginia	FINAL ACTION. West Virginia SB 441, which would have prohibited MTBE use, died in committee at the end of the legislative session.
Wisconsin	FINAL ACTION. AB 838, a proposed ban on MTBE, failed to pass the Wisconsin Assembly in 1999.
Wyoming	Little or no activity.

August 2002

States That Have Acted to Ban or Restrict MTBE Use

State	Action	Effective Date
Arizona	Phase out MTBE.	Effective no later than 180 days following California's MTBE ban
California	Phases out MTBE completely.	12/31/2003
Colorado	Phases out the use of MTBE.	Effective
Connecticut	Phases out the use of MTBE.	10-01-03; Legislation is pending to delay the ban until 2005
Illinois	Phases out the use of MTBE.	7/24/2004
Indiana	Prohibits sale of gasoline containing more than one-half of one vol. % MTBE.	7/23/2004
Iowa	Prohibits the sale of gasoline containing more than 2 vol. % MTBE.	Effective
Kansas	Prohibits sale of gasoline containing more than 0.5 vol. % MTBE.	Effective 07-01-04. Dependent upon waiver from EPA
Kentucky	Prohibits sale of gasoline containing more than 0.5% MTBE by volume, beginning 1/1/06. Beginning 1/1/04, encourages all RFG sold in the state to contain ethanol in place of MTBE.	Signed 4-23-02. Becomes effective 01-01-06.
Michigan	Phases out the use of MTBE.	6/1/2003
Minnesota	Prohibits the sale of gasoline containing more than 0.3 vol. % MTBE, ETBE, TAME. No amount of MTBE can be used to meet the state's oxygenate requirement.	Effective
Missouri	Prohibits the use of MTBE.	Effective 07-01-05
Nebraska	Prohibits the sale of any petroleum product containing more than 1 vol. % MTBE.	Effective
New York	Prohibits the sale of gasoline containing MTBE.	1/1/2004
Ohio	Prohibits the sale of gasoline containing more than 0.5% vol. MTBE.	7/1/2005
South Dakota	Prohibits sale of gasoline containing MTBE.	Effective

Washington	Phases out the use of MTBE, stating MTBE not be intentionally added to any gasoline, motor fuel or clean fuel produced for sale or use in the state and in no event may MTBE be present in gasoline above six-tenths of one percent by volume.	12/31/2003
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S.D. bans polluting gasoline additive

By RANDY HASCALL
Argus Leader

South Dakota will restrict the sale of gasoline containing an additive that has contaminated soil and groundwater in several states, including Iowa.

Gov. Bill Janklow signed into law Wednesday a bill that will prohibit the sale of any petroleum product containing more than 2 percent methyl tertiary butyl ether.

That additive, which is used in many states to oxygenate fuel, is intended to help the environment by lowering pollution emissions into the air. However, it's been responsible for several ground and water contaminations, including municipal wells as close as Alvord and Ida Grove, Iowa.

The city of Alvord, in Lyon County, stopped using its well more than two years ago, primarily because of the contamination, Mayor Wes Koedam said Thursday. The city now gets its water from a rural water system.

"We determined we couldn't clean it up," Koedam said.

Water samples taken from test wells that were dug between a gasoline station in Alvord and the city well all

What is MTBE?

MTBE stands for methyl tertiary-butyl ether. It is a gasoline additive made from methanol, a by-product of the oil refining process. It was first blended with gasoline in 1979 to reduce lead and increase the octane.

Similar to corn-based ethanol, MTBE burns cleaner than gasoline. Efforts to reduce the carbon emissions in California and several cities such as Denver, led to increase use of the compound.

But traces of MTBE began showing up in water sources across the country, including northwest Iowa, apparently leaked from underground storage tanks. The health effects from the compound are not completely known but some medical experts are concerned about long-term exposure to drinking water containing MTBE.

tested positive for MTBE, Koedam said.

Dennis Davis, executive director of the South Dakota Association of Rural Water Systems, testified this week in

Gas additive / See 7A

advertising call 331-2345 or 800-341-7653

Gas additive: Ethanol may benefit

Continued from 1A

support of the new regulation, which the South Dakota Legislature approved unanimously. "This is very good for the environment," Davis said, adding that another legislative bill that was considered might have been even better because it was more restrictive.

Rural water systems also want to make sure the state requires MTBE testing during cleanups of abandoned underground fuel tanks. South Dakota hasn't previously done any sampling for the gasoline additive, he said.

"This is really some nasty stuff," Davis said. "There's no good, inexpensive way to clean it up."

Fortunately, no substantial supplies of fuel with the anti-pollutant have come into South Dakota because the state has clean air, Davis said.

Trevor Guthmiller, executive director of the American Coalition for Ethanol, said eight ounces of the additive can contaminate five million gallons of drinking water. Spillage from a car accident could threaten an entire aquifer, he said.

Water contaminated by MTBE has a bitter taste and odor. Research has shown it causes tumors in rats.

"Statewide, we've been concerned about it for quite awhile," Davis said. "We've seen the damage it caused in other parts of the country. We didn't want MTBE in South Dakota threatening the drinking supply."

An MTBE crackdown that's spreading across the nation could benefit the ethanol industry, Davis said. As states such as California phase it out, ethanol could take its place.

Reach reporter Randy Hascall at 331-2320 or hascall@argusleader.com

37-2-33. Sale of products containing or treated with ether prohibited--Exception-- Construction. No person may sell, offer for sale, or store petroleum products containing or treated with methyl tertiary butyl ether. The provisions of this section do not apply if the presence of methyl tertiary butyl ether in a petroleum product is caused solely by accidental commingling of methyl tertiary butyl ether with the petroleum product during storage or transfer of the petroleum product and the concentration of methyl tertiary butyl ether in the petroleum product does not exceed one-half of one percent by volume. In no event may the provisions of this section be construed to permit the knowing or willful addition of methyl tertiary butyl ether to any petroleum product.

Source: SL 2001, ch 211, § 1.

[Back to Chapter 37-2](#)

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*South
Dakota
Code*

214A.18 MTBE prohibition.

1. A person shall not do any of the following:

Iowa

a. Sell motor vehicle fuel containing more than trace amounts of MTBE in this state.

b. Store motor vehicle fuel containing more than trace amounts of MTBE in a motor vehicle fuel storage tank located in this state.

2. As used in this section, "*trace amounts*" means not more than one-half of one percent by volume.

Section History: Recent form

2000 Acts, ch 1224, §30

Previous Section [214A.17](#)

Next Section [214A.19](#)



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Please remember that the person listed above does not vote on bills. Direct all comments concerning legislation to State Legislators.

Last update: Thu Jan 15 10:49:41 CST 2004

URL: [/IACODE/2003SUPPLEMENT/214A/18.html](http://IACODE/2003SUPPLEMENT/214A/18.html)

jhf

Action

A. From and after September 30 through March 31 of each year, in a county with a population of one million two hundred thousand or more persons and in any portion of a county contained in area A, blends of gasoline with ethanol shall not exceed the volatility requirements prescribed by section 41-2083 and rules adopted by the director under that section. From and after September 30, 1999 through March 31, 2000 and from and after September 30 through March 31 of each year thereafter, in area B, blends of gasoline with ethanol may exceed the volatility requirements prescribed by section 41-2083 and rules adopted by the director under that section by up to one pound per square inch if the base fuel meets the requirements of ASTM D4814 and the final gasoline-ethanol blend contains at least six per cent ethanol by volume but does not exceed United States environmental protection agency waivers. For any other locations and period of time, blends of gasoline with ethanol shall meet the volatility requirements as determined by department rule.

B. Notwithstanding subsection D of this section, the director of the department of weights and measures in consultation with the director of the department of environmental quality shall approve alternate fuel control measures that are submitted by manufacturers or suppliers of gasoline and that the directors determine will result in motor vehicle carbon monoxide emission reductions that will equal or exceed the reductions that result under subsection D of this section. In making those determinations, the directors shall compare the alternative measure against the emission reduction that would be obtained from a fuel with the maximum vapor pressure standard prescribed by subsection D of this section and the minimum oxygen standard prescribed by section 41-2123 or 41-2125. Alternative fuel control measures approved by the director of the department of weights and measures in consultation with the director of the department of environmental quality may be used by any manufacturer or supplier of gasoline unless the approval is rescinded by the director of the department of weights and measures at least one hundred eighty days before the beginning of any oxygenate period in the future. Manufacturers and suppliers who choose to use an approved alternate fuel control measure shall annually submit a compliance plan to the director of the department of weights and measures not later than sixty days prior to the start of the oxygenate period.

C. From and after September 30 through March 31 of each year, all blends of gasoline with alcohol other than ethanol shall satisfy all of the requirements prescribed by section 41-2083 and rules adopted by the director under that section and the provisions of a waiver issued by the United States environmental protection agency pursuant to 42 United States Code section 7545(f).

D. Notwithstanding subsection A of this section, if the director of the department of environmental quality has previously raised the minimum oxygen content to the maximum percentage of oxygen allowed for each oxygenate as provided by section 41-2125, the designated air quality planning agency for area B has considered, analyzed and reviewed the costs and benefits of all other reasonable and available control measures in lieu of reducing volatility requirements to nine pounds per square inch and the director of the department of environmental quality finds that area B has failed to maintain the carbon monoxide national ambient air quality standards by violating the standard, beginning with the oxygenate period beginning on the following September 30 and for each oxygenate period thereafter in area B, the volatility requirements described by section 41-2083, subsection G may be reduced to nine pounds per square inch. If a violation of the carbon monoxide national ambient air quality standards is recorded after the volatility requirements have been reduced to nine pounds per square inch, the director of the department of environmental quality shall remove the one pound per square inch waiver for gasoline-ethanol blends.

E. Beginning on January 1, 2005, gasoline that is supplied or sold by any person and that is intended as a final product for the fueling of motor vehicles within this state shall not contain methyl tertiary butyl ether that exceeds 0.3 per cent by volume.

Nebraska

66-1227

yl tertiary butyl ether; restriction.

On or after July 13, 2000, a retailer shall not offer for sale in this state any petroleum product that contains more than one percent of methyl tertiary butyl ether (MTBE) by volume. For purposes of this section, retailer has the same definition as in section 66-482.

Source:

Laws 2000, LB 1234, § 17.

BILL NUMBER: ACR 132 CHAPTERED 08/30/00

RESOLUTION CHAPTER 119
FILED WITH SECRETARY OF STATE AUGUST 30, 2000
ADOPTED IN ASSEMBLY AUGUST 23, 2000
ADOPTED IN SENATE AUGUST 22, 2000
AMENDED IN SENATE JUNE 13, 2000
AMENDED IN SENATE MAY 25, 2000
AMENDED IN ASSEMBLY MAY 1, 2000

INTRODUCED BY Assembly Member Firebaugh
(Coauthors: Assembly Members Leach and Torlakson)

FEBRUARY 24, 2000

Assembly Concurrent Resolution No. 132--Relative to California
Phase 3 Reformulated Gasoline.

LEGISLATIVE COUNSEL'S DIGEST

CA

ACR 132, Firebaugh. California Phase 3 Reformulated Gasoline.

This measure would urge the State Air Resources Board to conduct public hearings in the Los Angeles Air Basin and in the San Francisco East Bay Area to discuss the impacts that the California Phase 3 Reformulated Gasoline regulations may have on air quality, public health, and on the price and supply of gasoline, and to receive public input regarding the proposed regulations.

WHEREAS, The Governor's Executive Order D-5-99 requires the State Energy Resources Conservation and Development Commission, in consultation with the State Air Resources Board, to phase out the fuel additive methyl tertiary butyl ether (MTBE) from the state's gasoline supply; and

WHEREAS, California's current formula for gasoline, California Phase 2 Reformulated Gasoline, was mandated to improve air quality and has reduced the amount of pollutants present in the air from motor vehicle emissions by 3.2 million pounds per day; and

WHEREAS, In order to improve California's air quality, it may be necessary for gasoline to contain some additives, and the State Air Resources Board should be made aware of the potential impact of these additives on the environment, gasoline supply, transportation safety, highway safety, and consumer cost; and

WHEREAS, California's largest cities often bear the burden of negative environmental and cost impacts associated with gasoline and motor vehicle emissions, including increased emissions on inner-city freeways, and higher fuel costs to lower income urban citizens; and

WHEREAS, The State Air Resources Board has not scheduled public hearings to discuss the California Phase 3 Reformulated Gasoline regulations in the Los Angeles Air Basin or in the San Francisco East Bay Area where air quality would be most affected and the health dangers from air pollution are already severe; and

WHEREAS, The public has a right to discuss the impact of these new regulations with public officials, and the State Air Resources Board has a responsibility to provide adequate information regarding potential threats to public health and significant increases in the cost of gasoline; now, therefore, be it

Resolved by the Assembly of the State of California, the Senate thereof concurring, That the Legislature urges the State Air

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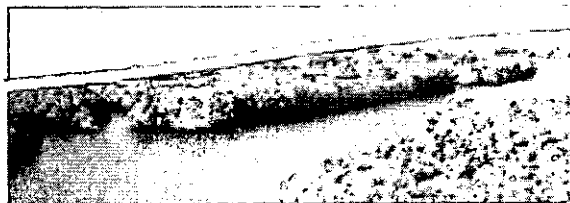
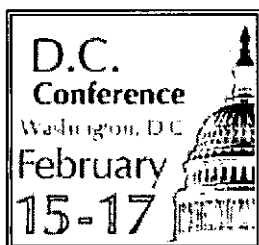
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News Release

March 11, 2002

ACWA Urges Governor Davis to Stand Firm on MTI

Contact: Jennifer Persike, ACWA Director of Communications & Outreach
916.441.4545 (w) 916.296.3981 (c)

Sacramento - The Association of California Water Agencies (ACWA) urged Governor Davis to protect the state's water resources by standing firm to phase out the use of MTBE in gasoline by the end of this year.

In a March 8 letter signed by ACWA Executive Director Stephen Hall, the association urged Davis to resist pressure to delay the ban on MTBE, an additive that has been detected in groundwater and surface water sources throughout California. Davis issued an executive order in 1999 calling for MTBE by December 31, 2002.

"Delaying the ban on MTBE by even one more day is another opportunity for MTBE to find its way into another community's water supplies," ACWA letter. "We believe that given the choice between continued MTBE use and protection of our water supplies, the public would put our water supply - even if it means paying a little more at the pump for a short time."

ACWA noted that MTBE contamination has forced the closure of drinking water wells in South Lake Tahoe, Santa Monica, San Jose, Cambria, Kern County and other locations. It has resulted in millions of dollars in water treatment, and replacement water costs, and has diminished the public's confidence in the safety of water supplies.

Although one consultant's report suggests gasoline prices will rise if MTBE is banned at the end of this year, ACWA cautioned that any increases in gasoline would pale in comparison to the cost of ongoing cleanup and replacement of contaminated water supplies.

The letter expressed support for the governor's efforts to obtain a waiver from California from the Clean Air Act's oxygenate requirement. However, in the recent MTBE contamination in Ventura County as evidence of the need to phase MTBE from gasoline as soon as possible.

"It is patently obvious that MTBE is a threat to our state's water resources. It is an expensive problem that will only grow more expensive in the future, and it is costing us precious water supplies that California simply cannot afford."



U.S. Environmental Protection Agency Methyl Tertiary Butyl Ether (MTBE)

Contact Us | Search: **GO**
[EPA Home](#) > [MTBE](#) > [Drinking Water](#)

Drinking Water

Note: Some terms in this document link to other EPA and non-EPA Web sites or documents on that topic. Links going to non-EPA sites are identified with an [EXIT disclaimer](#) symbol.

Concerns about MTBE

Drinking Water Quality

Occurrence of MTBE in Water

Movement and Disposition of MTBE in the Environment

Additional Information

Concerns about MTBE

With these air quality benefits, why is there concern with the use of MTBE?

A growing number of studies have detected MTBE in ground water throughout the country; in some instances these contaminated waters are sources of drinking water. Low levels of MTBE can make drinking water supplies undrinkable due to its offensive taste and odor.

Is MTBE harmful to humans?

The majority of the human health-related research conducted to date on MTBE has focused on effects associated with the inhalation of the chemical. When research animals inhaled high concentrations of MTBE, some developed cancers or experienced other non-cancerous health effects. To date, independent expert review groups who have assessed MTBE inhalation health risks (e.g., "[Interagency Assessment of Oxygenated Fuels](#)") have not concluded that the use of MTBE-oxygenated gasoline poses an imminent threat to public health. However, researchers have limited data about what the health effects may be if a person swallows (ingests) MTBE. EPA's Office of Water has concluded that available data are not adequate to estimate potential health risks of MTBE at low exposure levels in drinking water but that the data support the conclusion that MTBE is a potential human carcinogen at high doses. Recent work by EPA and other researchers is expected to help determine more precisely the potential for health effects from MTBE in drinking water.

EPA reviewed available health effects information on MTBE in its 1997 [Drinking Water Advisory](#) guidance and decided that there was insufficient

information available to allow EPA to establish quantitative estimates for health risks and as such would not set health advisory limits. The drinking water advisory document indicates that there is little likelihood that MTBE in drinking water will cause adverse health effects at concentrations between 20 and 40 ppb or below.

[top of page]

Drinking Water Quality

Has EPA set a drinking water health standard for MTBE?

EPA has not set a national standard for MTBE, although some states have set their own limits. EPA will issue a secondary drinking water standard, based on taste and odor, by late Fall 2000. This taste and odor standard will serve as a guideline that states may adopt. In December 1997, EPA issued a Drinking Water Advisory that states concentrations of MTBE in the range of 20 to 40 ppb of water or below will probably not cause unpleasant taste and odor for most people, recognizing that human sensitivity to taste and odor varies widely. The advisory is a guidance document that recommends keeping concentrations below that range. EPA also reviewed the available information on health effects in the 1997 advisory and stated that there is little likelihood that MTBE concentrations between 20 and 40 ppb in drinking water would cause negative health effects.

EPA is continuing to study both the potential health effects and the occurrence of MTBE, and it is on a list of contaminants (Contaminant Candidate List) for which EPA is considering setting health standards. As a means of gathering occurrence information, beginning in 2001, EPA will require all large drinking water systems and a representative sample of small systems to monitor and report the presence of MTBE (Unregulated Contaminant Monitoring Regulation).

How do I know if I have MTBE in my water?

It is possible your water would taste and/or smell like turpentine if MTBE is present at levels around or above 20-40 ppb (some people may detect it at even lower levels). Though you cannot currently purchase a home testing kit, you can determine if your water contains MTBE the following ways. If your drinking water is supplied by a public water system, you can contact the system directly and ask whether they monitor for MTBE and what levels, if any, have been detected. In 2001, most public water systems will be required to monitor for MTBE. If you have a private well, you may want to have your well water tested. Your local health department may be able to tell you if MTBE has been found in water in your area. If you want to get your water tested, call the Safe Drinking Water Hotline (800-426-4791) or go to <http://www.epa.gov/safewater/faq/sco.html> to get the phone number for the office in your state that certifies drinking water laboratories.

[top of page]

Occurrence of MTBE in Water

How does MTBE get in drinking water sources?

There are opportunities for MTBE to leak into the environment (and potentially get in drinking water sources) wherever gasoline is stored, and there are opportunities for it to be spilled whenever fuel is transported or transferred. While federal and state programs minimize the potential for leaks and spills, no system is foolproof.

Contamination of drinking water sources can occur from leaking underground and above ground fuel storage tanks, pipelines, refueling spills, automobile accidents damaging the fuel tank, consumer disposal of "old" gasoline", emissions from older marine engines, and to a lesser degree, storm water runoff, and precipitation mixed with MTBE in the air (EPA's Office of Ground Water and Drinking Water) or (USGS report).

[EXIT disclaimer >](#)

How widespread and at what levels is MTBE contamination in water supplies?

Although there are no nation-wide data sets from which to fully characterize MTBE contamination of water, a growing number of studies to-date have detected MTBE in drinking water supplies throughout the country. Current data on MTBE levels in ground and surface waters indicate widespread and numerous detections at low levels of MTBE, with a more limited number of detections at higher levels (only about 1 percent of concentrations are more than 20 parts per billion (ppb) as discussed in the 1999 [Blue Ribbon Panel Report on Oxygenates in Gasoline](#)). Studies have shown that MTBE is detected in water roughly five times more often and at higher concentrations in areas of the country where federal RFG is sold (i.e., where there is an oxygenate mandate).

When MTBE is detected, the levels are typically below 20 ppb which is lower than EPA's Drinking Water Advisory. However, releases from petroleum storage tanks, and pipeline breaks or other point sources can cause high concentrations of MTBE in water. When such releases occur, the resulting localized concentration can be much higher than the EPA's advised taste and odor acceptable range (EPA's Office of Ground Water and Drinking Water).

What is the status of the drinking water contamination in Santa Monica, CA, the city with the first significant incidence of MTBE contamination?

In 1996, the city of Santa Monica learned that two of its drinking water wellfields, Charnock and Arcadia, were contaminated with MTBE at levels as high as 610 ppb and 86 ppb respectively. In response, the two wellfields, representing 50 percent of the city's drinking water supply were shut down and the city began purchasing replacement water. This incident was the first major water contamination which brought public attention to MTBE.

EPA's [Region 9](#) and the Los Angeles Regional Water Quality Control Board (RWQCB) are pursuing a joint enforcement action at the [Charnock](#) wellfield in Santa Monica. Site-specific clean-up is underway. At the smaller Arcadia wellfield, the RWQCB has the lead while EPA provides technical support and field oversight of the clean-up.

[\[top of page\]](#)

Movement and Disposition of MTBE in the Environment

What happens when MTBE gets into the environment?

Because MTBE dissolves easily in water and does not "cling" to soil very well, it migrates faster and farther in the ground than other gasoline components, thus making it more likely to contaminate public water systems and private drinking water wells. MTBE does not degrade (breakdown) easily and is difficult and costly to remove from ground water.

How long will MTBE remain in water?

MTBE is generally more resistant to natural biodegradation than other gasoline components. Some monitoring wells have shown little overall reduction in MTBE concentration over several years which suggests that MTBE is relatively persistent in ground water. In contrast, studies of surface water (lakes and reservoirs) [\[EXIT disclaimer\]](#) have shown that MTBE volatilizes (evaporates) relatively quickly.

[\[top of page\]](#)

Additional Information

You can access additional documents on how MTBE affects drinking water from the [Office of Ground Water and Drinking Water](#).

You can also call the Safe Drinking Water Hotline at 800-426-4791 for information and assistance about EPA's drinking water regulations, the wellhead protection program, source water protection and related guidance, and public education materials.

Local Information will tell you whom to contact in your area for more information on MTBE in drinking water.

[\[top of page\]](#)

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MTBE Case Studies

California and Iowa MTBE banned

Gov. Gray Davis ordered a three-year phase out of MTBE, leading up to the ban by the end of 2002.

Contamination in the drinking water became a major threat in California in 1997 after Santa Monica lost half its underground drinking water to MTBE contamination. Several wells were closed. Clean-up costs will exceed \$5 million. (*Oxy-Fuel News*, 8/16/99)

South Lake Tahoe lost approximately one-third of its wells due to MTBE contamination. (*Los Angeles Times*, 5/18/99)

Dozens of MTBE-contaminated sites are now clustered in Oxnard and Ventura counties atop a critical aquifer that provides drinking water to 300,000 consumers. MTBE poses a threat of filtering into the drinking water supply. (*Los Angeles Times*, 5/18/99)

Approximately 10,000 groundwater sites are contaminated statewide. (*Lawrence Livermore National Laboratories*)

Iowa also has banned MTBE

Alaska, Montana, North Carolina and Iowa MTBE removed

MTBE has been banned in Alaska and part of Montana because of complaints of health problems. Motorists said they had trouble with breathing, nausea, sore throat, skin rashes, eye irritations and neurological problems after pumping gas or breathing automobile exhaust. (*Hartford Courant*, 1/5/99)

North Carolina banned MTBE after classifying it as a probable cause of cancer in people. (*The Hartford Courant* 1/5/99)

Maine Out of RFG because of MTBE

State officials pulled out of the reformulated gasoline program due to concerns about MTBE. (*Boston Globe*, 7/27/99)

More than 4,000 wells in the state were found to have MTBE contamination. (*Dow Jones Energy Service*, 10/14/98)

In October 1998, Maine was the first state to request dismissal from the RFG program, stating that MTBE is a potential health threat. (*Dow Jones Energy Service*, 10/14/98)

In November 1998, the EPA withdrew the existing reformulated fuels mandate in Maine. MTBE Case Studies, cont'd

Wisconsin No more MTBE

In Wisconsin, reformulated gasoline is required in six eastern counties. While MTBE was widely used in the area when reformulated gasoline was introduced in 1995, it has been replaced in most gasoline brands by ethanol.

Wisconsin motorists complained shortly after its introduction that fumes from reformulated gas containing MTBE caused headaches and dizziness. Others said reformulated gas damaged small gasoline engines because the fuel burns so hot. (*Milwaukee Journal Sentinel*, 7/29/99)

In July 1999, a government advisory panel asked for a widespread reduction of MTBE. The panel made up of diverse interests from environmentalists to oil industry executives found that while reformulated gasoline has contributed to significant air quality improvements, MTBE poses a growing threat to drinking water.

Northeastern states MTBE pollutes

Environmental officials from eight northeastern states (Connecticut, Massachusetts, New Hampshire, New Jersey, New York, Maine, Rhode Island and Vermont) called for MTBE to be largely phased out within three years because it pollutes waterways.

Connecticut Want to ban MTBE

Legislators will try to pass a law in the next General Assembly session to ban the use of MTBE. (*Hartford Courant*, 7/28/99)

More than 200 wells from across the state have been tainted with MTBE. (*The Hartford Courant*, 7/29/99)

Connecticut legislators passed a law authorizing a study aimed at possibly banning MTBE. (*Hartford Courant*, 7/29/99)

In 1992 Connecticut Water Co. had to shut down three wells because of MTBE contamination attributed to a gasoline leak from a tank at a municipal garage.

Massachusetts MTBE contaminates water

MTBE has seeped into 53 drinking water supplies in the state, requiring the closure of three wells. (*The Boston Globe*, 5/12/99)

Gasoline stations along Southbridge Street (Route 12) pose potential hazards to the water supply. MTBE was detected in Well No. 6, which led to the filtration system installation. (*Telegram & Gazette*, 6/23/99)

Heavy traffic on the Massachusetts Turnpike, Interstate 290 and Route 20 are a challenge in keeping the water supply safe.

New Hampshire MTBE contaminates wells

New Hampshire Department of Environmental Services requested a waiver from the federal RFG program that required some southern counties to reduce air pollution. (*Associated Press*, 8/1/99)

21% of the wells in the state exceed state limits of MTBE. (*Oxy-Fuel News*, 8/3/98)

New Jersey MTBE in wells

The New Jersey Department of Environmental Protection found 400 private wells and 65 public wells that were contaminated by MTBE. (*National Petroleum News*, 6/1/99)

New York MTBE forces school to close

MTBE has been detected at approximately 1,500 spill sites in all 62 counties of New York. (*Oxy Fuel News*, 8/23/99)

Groundwater contaminated by MTBE near a Valley Stream elementary school forced the school to close.

Gov. George Pataki ordered the state Department of Environmental Conservation to reduce the amount of MTBE allowed in surface and groundwater. (*Associated Press Newswires*, 11/9/99)

MTBE on the Way Out

The U.S. Environmental Protection Agency today approved Arizona's revised air quality plan that makes changes to its Cleaner Burning Gasoline program. The revision affects fuel requirements for gasoline distributed in the Phoenix area and small portions of Pinal and Yavapai counties. Cars, trucks and buses cause about 50 percent of the Valley's smog.

Arizona's Cleaner Burning Gasoline program has improved air quality. The use of cleaner burning gasoline has been responsible for dramatic improvements in the Valley's air quality since 1997. Its use in the metropolitan Phoenix non-attainment area reduces hydrocarbon emissions by 29 tons per day, nitrogen oxides by 7 tons per day and carbon monoxide (during winter months) by 43 tons per day.

Under the revised plan, the wintertime oxygenated fuels program will change so that only fuel similar to California's fuel – a cleaner type of gasoline – is sold during the winter months. Ethanol will also be required in all wintertime fuel, but the minimum oxygen content will no longer be required in summertime fuel, which facilitates the phase out of MTBE.

"Today's action paves the way for redesignation of the Phoenix metropolitan area for both carbon monoxide and 1-hour ozone," said Wayne Nastri, the PA's regional administrator for the Pacific Southwest region.

The Phoenix area has been reporting clean data for the pollutants for more than six years and can be redesignated to attainment after the EPA receives and approves maintenance plans that the state must submit for each pollutant.

"This approval is good news for Valley residents because it will go a long way toward eliminating the health and environmental risks associated with MTBE while giving gasoline producers the flexibility they need to provide economical gasoline that meets our clean air standards," said Steve Owens, director of the Arizona Department of Environmental Quality.

Methyl tertiary-butyl ether, or MTBE, is a potential human carcinogen that has been detected nationwide in groundwater and has in some cases contaminated drinking water sources. The elimination of the oxygen content requirement will expand the range of options for refiners to make cleaner burning gasoline that meets Arizona's performance standards for air quality.

This action ratifies the wintertime oxygenated fuels program that has been in place since 2000, which changed the fuel standards to a cleaner type of gasoline during the winter months. Ethanol will also be required in all wintertime fuel, but the minimum oxygen content will no longer be required in summertime fuel, which facilitates the phase out of MTBE.

Maybe now our gasoline prices can start to go down again— do you think?

Arizona's Cleaner Burning Gasoline program has improved air quality. The use of cleaner burning gasoline has been responsible for dramatic improvements in the Valley's air quality since 1997. Its use in the metropolitan Phoenix non-attainment area reduces hydrocarbon emissions by 29 tons per day, nitrogen oxides by 7 tons per day and carbon monoxide (during winter months) by 43 tons per day.

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Methyl tertiary-butyl ether, or MTBE, is a potential human carcinogen that has been

detected nationwide in groundwater and has in some cases contaminated drinking water sources. The elimination of the oxygen content requirement will expand the range of options for refiners to make cleaner burning gasoline that meets Arizona's performance standards for air quality.

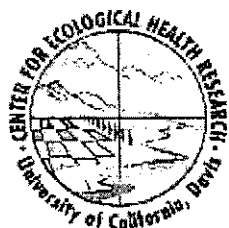
This action ratifies the wintertime oxygenated fuels program that has been in place since 2000, which changed the fuel standards to a cleaner type of gasoline during the winter months. Ethanol will also be required in all wintertime fuel, but the minimum oxygen content will no longer be required in summertime fuel, which facilitates the phase out of MTBE.

Maybe now our gasoline prices can start to go down again— do you think?

Related Resources

- [The Brown Cloud](#)
- [Ozone Alerts](#)

07:30 PM #



SCIENCE MEMORANDUM

19

re: The Sources and Fate of MTBE in Lakes and Reservoirs

- **Methyl tertiary-butyl ether, or MTBE, is an oxygenate added to gasoline to reduce air pollutant emission (10-15% by volume); however, the potential for drinking water resources is wide-spread.**

The U.S. EPA classifies MTBE as a possible human carcinogen. The discovery of MTBE in surface water and groundwater used for drinking water has raised scientific, public and political concern throughout the United States. On the basis of scientific data, both the State of California and the U.S. EPA have called for a phase-out of MTBE from fuels.

- **Approximately 50% of the sampled lakes and reservoirs in California used for drinking water supplies contained measurable MTBE on at least one sampling date.**

Of the 105 water bodies for which data was available, 10-15% contained MTBE at concentrations above the public health goal of 13 µg/L on at least one date. For most water bodies, the data was insufficient to evaluate the length of time MTBE exceeded this goal. Data to date suggest that while the mere presence of MTBE in California lakes and reservoirs is widespread, public health impacts to these drinking water resources is minimal statewide, but may be an issue in a few selected water bodies. Violation of the stringent California secondary drinking water standard for taste and odor (5 µg/L) were more likely to occur.

- **The primary source of MTBE to lake and reservoirs is in unburned fuel from marine engines.**

Comprehensive studies from Donner Lake, Lake Tahoe and other water bodies showed a close statistical relationship between MTBE concentration and marine engine use. This conclusion was corroborated by the statewide data discussed above. Carbureted 2-stroke engines at Lake Tahoe contributed a disproportionate load of MTBE relative to fuel use. A ban on most 2-stroke engines at Lake Tahoe resulted in a ten-fold decline in MTBE, lake wide.

- **The major loss of MTBE from surface water bodies appeared to be volatilization at the air-water interface.**

In the absence of new sources, the half-life of MTBE in Donner Lake was 14-days. Similarly, MTBE in Lake Tahoe dropped at the end of the boating season. Negligible levels of MTBE during the winter in both these lakes, suggest little interannual persistence.

- **Thermal stratification acted to retard MTBE transport to deep depths.**

At turnover, MTBE was distributed with depth; however, these increases were only temporary because of volatilization. (Note: While we believe that these conclusions have general applicability to many lakes and reservoirs, specific conditions such as accidental spills, unusual lake hydrodynamics, etc. would represent special circumstances.)

Detailed Project Description

State Actions Banning MTBE (Statewide)

The following states have either a partial or complete ban on MTBE (methyl tertiary-butyl ether). This list is updated when new information becomes available. For more information on MTBE, please visit the U.S. Environmental Protection Agency's (EPA's) Web site at www.epa.gov/mtbe.

State (EPA Region)	Phaseout date (in chronological order)	Complete or partial ban?	Applies to other oxygenates?	Date of adoption
IA (7)	7/1/00	Partial: no more than trace amounts (0.5% by vol.) MTBE in motor vehicle fuel.	MTBE only	5/11/00 Replaced previous limit of 2% (vol.)
MN (5)	7/2/00 (partial) 7/2/05 (complete)	Partial/then complete: no more than 1/3 of 1% oxygenate as of 7/2/00; complete ban as of 7/2/05.	MTBE, ETBE ¹ , and TAME ²	Early 2000
NE (7)	7/13/00	Partial: no more than 1% (vol.) MTBE in any petroleum product.	MTBE only	4/11/00
SD (8)	7/1/01	Partial: no more than trace amounts (less than 0.5% vol.) resulting from commingling during storage or transfer.	MTBE only	2/28/01 Replaced previous limit of 2% (vol.)
CO (8)	4/30/02	Complete ban by 4/30/02.	MTBE only	5/23/00
CA (9)	Originally 12/31/02; delayed to 12/31/03	Complete ban by 12/31/02, but latest Exec. Order requires CARB to implement by 7/31/02 a one-year delay in ban. On 7/25/02, CARB delayed the ban by 1 year.	MTBE only	10/9/99 (Orig. E.O. issued 3/25/99; latest E.O. issued 3/15/02)

¹ ETBE stands for Ethyl tertiary butyl ether

² TAME stands for Tertiary amyl methyl ether

State (EPA Region)	Phaseout date (in chronological order)	Complete or partial ban?	Applies to other oxygenates?	Date of adoption
MI (5)	6/1/03	Complete ban by 6/1/03; can be extended if determined by 6/1/02 that phaseout date is not achievable.	MTBE only	6/26/00
CT (1)	1/1/04	Complete ban by 1/1/04, planned in conjunction with NESCAUM regional fuels task force.	MTBE only	6/1/00 (Orig. phaseout date 10/1/03; extended to 1/1/04 on 6/18/03)
NY (2)	1/1/04	Complete ban as of 1/1/04.	MTBE only	5/24/00
WA (10)	1/1/04	Partial: may not be intentionally added to fuel, or knowingly mixed in gasoline above 0.6% (vol.)	MTBE only	5/10/01
KS (7)	7/1/04	Partial: may not sell or deliver any motor vehicle fuel containing more than 0.5% (vol.) MTBE	MTBE only	4/19/01
IL (5)	7/24/04	Partial: may not use, sell or manufacture MTBE as a fuel additive, but may sell motor fuel containing trace amounts of MTBE (0.5% or less by volume)	MTBE only	7/24/01 (original ban) revised 6/24/02 to allow trace amounts
IN (5)	7/24/04	Partial: no more than 0.5% (vol.) MTBE in gasoline	MTBE only	3/14/02
WI (5)	8/1/04	Partial: no more than 0.5% (vol.) MTBE in gasoline	MTBE only	8/11/03
OH (5)	7/1/05	Partial: no more than 0.5% (vol.) MTBE in motor vehicle fuels	MTBE only	5/29/02

State (EPA Region)	Phaseout date (in chronological order)	Complete or partial ban?	Applies to other oxygenates?	Date of adoption
MO (7)	7/31/05	Partial: no more than 0.5% (vol.) MTBE in gasoline sold or stored	MTBE only	7/11/02
KY (4)	1/1/06	Partial: no more than trace amounts of MTBE in fuel after this date	MTBE only	4/23/02
ME (1)	1/1/07	Partial: no more than 0.5% (vol.) MTBE in gasoline sold.	MTBE only	4/14/04
NH (1)	The latter of 1/1/07 or 6 months after Federal approval to opt out of RFG	Partial: no more than 0.5% (vol.) in gasoline sold or stored	MTBE, other gasoline ethers, or tertiary butyl alcohol (TBA)	5/27/04

NOTES:

(1) Oxygenated Fuels Association (OFA) has challenged NY and CA bans in court. Status of these lawsuits is as follows:

- NY: On May 18, 2001, the U.S. District Court for the Northern District of NY denied OFA's motion for summary judgment in the lawsuit challenging the NY ban. On November 21, 2003, the U.S. District Court for the Northern District of New York rejected OFA's request to strike New York's Ban.
- CA: On September 4, 2001, the U.S. District Court in Sacramento granted the State's motion to dismiss, ruling that the federal CAA does not prohibit the State's action to phaseout MTBE. In June 2003, the Ninth U.S. Circuit Court of Appeals upheld California's state MTBE ban.

(2) AZ adopted legislation on 4/28/00 calling for a complete phaseout of MTBE as soon as feasible but in no event later than 6 months after California's phaseout. This legislation expired on June 30, 2001, so it is no longer official state policy although the state informally still encourages phaseout of MTBE.

Ron Ness

Beginning August 1, 2005, a person shall not sell, offer for sale, supply or offer for supply gasoline which contains the oxygenates methyl tertiary butyl ether in quantities greater than 0.5 percent by volume. Nothing in this section shall prohibit the transshipment of gasoline containing the oxygenates within the commonwealth for disposition outside the commonwealth, including storage coincident to the transshipment.

#1

SB 2346
TESTIMONY
By Senator Elroy Lindaas
March 10, 2005

Mr. Chairman and House Transportation Committee members, for the record my name is Elroy Lindaas, State Senator from District 20, comprised of Traill County and parts of Steele, Cass and Barnes Counties. I appear before you today as prime sponsor of SB 2346.

The handouts I have provided will further explain why the substance MTBE should be outlawed in North Dakota, just as it is in many other states. MTBE has been used to raise octane level in gasoline for a number of years and more recently has been discovered to contain dangerous pollutants that effect soil and ground water.

I invite you to look at the newspaper article with regard to the South Dakota law. According to the information, MTBE is highly toxic and just a few ounces can contaminate several million gallons of water. It also states that an automobile accident could threaten an entire aquifer. On top of that it is nearly impossible to clean up.

One of the handouts shows what action has been taken in other states and I think it is imperative that we act now to avoid more serious consequences in the future.

On a very positive note, Ethanol can and will be a more environmentally sound additive that will benefit everyone.

I thank you for your attention and I will attempt to answer any questions you may have.



#2

JB2346

The Other Gasoline Crisis: Speeding Up the Shift From MTBE to Ethanol

David Morris and Jack Brondum*
Institute for Local Self-Reliance

September 2000

Executive Summary

The MTBE crisis has taught us the need to do a comprehensive evaluation of the costs and benefits of fuel additives. It has also reminded us that tradeoffs will be involved no matter what fuel or fuel strategy we embrace. To phase out MTBE while maintaining the requirement for oxygenates in transportation fuels will require a vast increase in the use of ethanol. Ethanol is an attractive fuel with many undisputed environmental and economic development benefits. Yet it suffers from one disadvantage. It raises the volatility of gasoline.

To make the transition from MTBE to ethanol in the most rapid and least disruptive manner possible, ethanol blends could be allowed a volatility waiver. Many in the environmental community vigorously oppose this. They fear that increased hydrocarbon emissions lead to increased ozone levels and adverse public health impacts. Their position seems to be that the adverse impact of these increased emissions is so damaging that it outweighs the many undisputed environmental benefits of ethanol.

This report challenges that position. We argue that volatility should be one of the factors evaluated by transportation fuel policy makers but should not be the single most determining factor. We further argue that although ethanol blends do indeed increase mass emissions, this has little, if any impact on ozone formation. Finally, we argue that ozone concentration itself is a minor public health problem compared to the impact of particulate matter or other more toxic emissions where ethanol has a very beneficial impact.

The methyl-tertiary-butyl-ether (MTBE) crisis resulted in part from environmentalists and policy makers focusing on a single environmental impact while ignoring the larger picture. MTBE, a fossil fueled-derived gasoline additive, was embraced because of its benign impact on local air quality; its adverse impact on water quality was never addressed.

The MTBE crisis has taught policy makers two lessons. First, we should do a full cost,

not a partial cost, analysis when designing public policies. Second, there are tradeoffs in any policy we adopt.

As a result of grassroots activism, several states are now phasing out MTBE. The debate now focuses on what clean air additives should substitute for MTBE. Currently federal regulations require that gasoline sold in urban areas that suffer from high concentrations of ground level ozone must contain oxygen. If MTBE is phased out, the only oxygenate available in large quantities is plant matter-derived ethanol. Ethanol has many attractive qualities; however adding ethanol to gasoline in small amounts raises the overall level of hydrocarbon emissions (VOCs) from the gasoline. To reduce ground level ozone formation (smog) the federal government has mandated that gasoline sold in highly polluted areas have lower volatility levels (i.e. reduce VOC emissions). This gasoline is called RFG, or Reformulated Gasoline. Often these urban ozone exceedance areas are called RFG areas.

The measure of volatility in gasoline is the Reid Vapor Pressure (RVP), in this case "pressure" is the tendency of a compound to "offgas" or volatilize. A 10 percent ethanol blend raises the RVP of gasoline by about one pound. Therefore, to add ethanol to gasoline sold in polluted areas and still remain within the necessary RVP levels, the base or starting volatility level of the gasoline must be lowered by one pound. Such gasoline is sometimes called sub-RVP gasoline. In Chicago and Milwaukee, where gas stations switched from MTBE to ethanol (as a result of customer complaints), sub-RVP gasoline has been supplied by the oil companies.

But oil companies are reluctant to produce low volatility gasoline, especially if they only need to produce it for a few areas within their market region. Thus there is a problem in obtaining a reliable supply of low volatility gasoline at a reasonable price. The EPA, for example, estimates that the increase in price resulting from lower volatility gasoline should be about 2 cents a gallon but companies may charge 5-10 cents a gallon more. The problem of supplying low RVP gasoline to only a few communities in a region is one reason for the huge spike in gasoline prices in the Midwest this past spring.

Ethanol currently has a 1 pound RVP waiver in areas not suffering from high ozone concentration levels. In those communities, ethanol can be mixed with normal volatility gasoline. No such waiver exists for ethanol blends sold in high ozone concentration communities. Extending that 1 lb waiver to RFG areas would allow ethanol to substitute for MTBE with relatively few logistical problems.

The environmental community vigorously opposes such a waiver. Indeed, some leading environmental organizations want Congress to give states the authority to eliminate the existing one pound RVP waiver currently granted to ethanol blends in non-polluted areas. These groups argue that when mass hydrocarbon emissions increase, ozone levels increase and public health is adversely affected. It is that proposition that this paper challenges.

As noted above, the MTBE crisis reminds us that any transportation fuel strategy will have its costs and its benefits. When it comes to MTBE, the environmental community appears to accept that approach. For example, in mid-1999 the Northeast States for Coordinated Air Use Management (NESCAUM), an interstate association of air quality control divisions of six New England states as well as New York and New

Jersey, has supported MTBE's continued use even after it has been shown to contaminate water because "the public health benefits RFG provides by reducing air pollution substantially outweigh adverse health impacts from exposure (of the population) to the oxygenate methyl tertiary butyl ether (MTBE) in the air and water."¹

Regrettably, the environmental community rarely adopts such a cost-benefit approach with respect to ethanol. Ethanol has many undisputed benefits compared to either gasoline or MTBE.

- Ethanol does not pose a water quality threat.
- Ethanol has a more benign impact on greenhouse gas formation than gasoline.
- Ethanol's use reduces gasoline's most toxic and harmful emissions, particulate matter (PM) and benzene
- Ethanol is made from a renewable fuel.
- Using plant matter to substitute for petrochemicals substantially reduces both upstream and downstream pollution.
- America's farmers are currently facing a profound crisis and substituting ethanol for MTBE would provide a modest or significant benefit to them, depending on whether the farmers themselves own the ethanol plant

Despite its health, environmental and rural economic development benefits, many in the environmental community believe that a single factor---the increased volatility of gasoline when ethanol is added --- should outweigh all of ethanol's other advantages. We disagree that this single factor should be accorded such determinative status. We do so for three reasons.

1. Ground level ozone has modest public health impacts
2. The entire RFG program has a very modest impact on ozone formation
3. Ethanol's contribution to ground level ozone formation is trivial or nonexistent

A comprehensive cost-benefit analysis should lead the environmental community not only to support the substitution of ethanol for MTBE, but to support a volatility waiver for ethanol so that it can be substituted more rapidly and easily.

1. High concentrations of ground level ozone have undeniable but modest adverse health impacts.²

Many toxic pollutants are generated when gasoline is burned. Some, like particulate matter, pose significant threats to public health. The empirical evidence suggests that others, like VOCs, which are one of the chemicals that contribute to the formation of

ozone, do not.

Clean air regulations target hydrocarbon emissions (VOCs). But the real target is ground level ozone. We will explore in some detail below the relationship of ethanol blends and VOC emissions. But ultimately, the public health issue is not about VOCs but about ozone concentrations. One medical researcher summarized the clinical evidence regarding ozone and public health in this way, "Although ozone has been demonstrated in clinical studies to cause undesirable physical reactions at levels that occasionally occur in ambient air, these effects are minor, temporary, and for the most part, unnoticeable unless an individual is engaged in moderate to heavy exercise."³

The study upon which the current EPA standard is based showed reversible physiological effects in adults engaging in heavy exercise at ozone concentrations above 150 ppb (parts per billion).⁴ The present standard of 120 ppb was set to allow for an ample margin of safety.

Recently the EPA proposed to reduce the National Ambient Air Quality Standards (NAAQS) for ozone from 120 ppb to 80 ppb. Its staff analysis concluded that such a reduction would prevent about 30 asthmatic admissions in New York City during the summer when ozone levels are high. This represents one tenth of 1 percent of the 28,000 total New York City asthmatic admissions each year.⁵

In its Regulatory Impact Assessment (RIA), the EPA concluded that the national benefits of such a standard would be modest and there was a possibility that zero health benefits would result from such a reduction. On the other hand, the EPA concluded that there were significant health benefits gained from reducing particulate matter emissions.

2. The Reformulated Gasoline (RFG) program has a modest impact on ozone formation.

The RFG program, in effect since 1996, has significantly reduced allowable volatility levels of gasoline, including ethanol blended gasoline. Its impact on ozone concentrations has been very small.

The national goal is to reduce ozone concentrations to a maximum of 120 ppb. The entire RFG program might reduce ozone levels by 1-3 ppb. Indeed, the National Research Council concluded that "the net impact of RFG on ambient ozone concentrations...is a few percent. For this reason, it is difficult to quantify the specific contribution of the RFG program to the apparent downward trend in ozone."⁶

Ethanol increases mass hydrocarbon emissions by 15-20 percent. If the entire RFG program will reduce ambient ozone concentrations by 1-3 ppb and if we assume a one-to-one linear correlation between increases in VOCs and ozone formation, then a 100 percent use of ethanol blends might diminish the expected ozone reductions by .15-.60 ppb, a remarkably small amount.

3. Increased volatility from ethanol blends has a very small impact on ozone formation. This is true even if ethanol blends were given a 1 pound volatility waiver in cities that now exceed national safe ozone concentrations.

The last paragraph indicated what the impact would be on ground level ozone concentrations if volatility increases from ethanol blends were directly related to ozone formation. But scientists now agree that increases in mass VOCs are in fact not linearly related to increases in ozone concentrations. The reactivity of the different hydrocarbon gases emitted from the car is important. Thus, if ethanol blends result in a 15 percent increase in emissions but because the composition of those emissions is different their reactivity with ozone-producing chemicals is reduced by 15 percent, then no more ozone will be formed.

This approximates what happens. It is widely accepted that ethanol blends will increase the volume of evaporative VOCs, which are less reactive (e.g. butane), and decrease the volume of exhaust pipe VOCs, which are more reactive and more toxic (e.g. benzene).

As noted above, ozone is not emitted from a car but is formed by the interaction of various chemicals in the presence of sunlight. These chemicals include nitrogen oxides (NO_x) and carbon monoxide (CO). Ethanol blends increase NO_x emissions but significantly decrease carbon monoxide emissions. A 10 percent ethanol blend contains 3.5 percent oxygen, which reduces carbon monoxide emissions by 15 percent or more.⁷ The contribution of carbon monoxide to ozone formation is now widely recognized by among others, the California Air Resources Board (CARB), the EPA and the National Research Council.⁸

CARB has presented the following table showing the difference in emissions between a hypothetical zero oxygen gasoline that meets RFG standards versus two that meet the same standard but contain increasing proportions of oxygen from ethanol. Two percent oxygen means a 5.7 percent ethanol blend. Three and a half percent oxygen translates into a 10 percent ethanol blend.

**Expected Percent Change in Reactivity-
Adjusted Ozone Forming Emissions**

Pollutant	Zero oxygen	2.0% Oxygen	3.5% Oxygen
NO _x	-5.4%	-2.4%	-0.8%
Exhaust Hydrocarbons	-1.5%	-3.3%	-5.7%
Evaporative Hydrocarbons	-7.2%	-5.0%	+2.0%
CO ₂	0%	0%	-0.2%
Total emissions ¹⁰	-3.1%	-3.5%	-4.5%

As we can see, the reduction in expected ozone forming emissions is modest for all three gasolines, although it is highest for a 10 percent ethanol.

CARB focuses on reducing NO_x. But atmospheric scientist Gary Whitten of ICF notes that if the tradeoff of reducing NO_x is to increase hydrocarbon and carbon monoxide emissions, the environment would be poorly served. The reason, according to Whitten, is that a reduction in hydrocarbon and carbon monoxide emissions has a much greater

beneficial impact on ozone formation than an equivalent reduction in NO_x. Whitten concludes, "The effectiveness of THC for reducing ozone in these simulations must be as much as 8 times better than NO_x reductions on an equal percentage of the mobile emissions basis."¹¹

If MTBE is phased out and ethanol is not used, the alternative is for oil companies to reformulate their gasoline. A reformulated gasoline that contains no oxygenate will often contain higher proportions of aromatic chemicals to achieve sufficient octane ratings. Dr. Michael Graboski of the Colorado School of Mines notes that California's new fuel standards allow for an increase in aromatics and concludes, "Considering CO effects only, the ozone reduction benefit of using a 3.5% oxygen provided by an ethanol blend with 26% aromatics compared to a non-oxygenated fuel with 34% aromatics is nearly 5%."

A vigorous debate is going on among scientists as to the precise impact of ethanol blends on ozone formation. For us, the most important aspect of this debate is that the difference of opinion revolves around an astonishingly small impact. Whitten, concluded that a 10 percent ethanol blend resulted in a 0.1 ppb increase in ozone formation compared with an MTBE blend, but that was still some 0.2 ppb less than the peak ozone emissions that would result from using a 100 percent gasoline, non-oxygenated fuel.¹² In another analysis, ICF took into account CARB's projected 5 percent NO_x increase and 5 percent VOC decrease from a 10 percent ethanol scenario and concluded that it decreased ozone formation compared to the non oxygenated fuel by 1.0 ppb.

The bottom line is that whichever side one supports, we are talking about an impact that is trivial. Whether ozone concentration levels increase or decrease by one part per billion should not be the determining factor in deciding whether the environmental community and policy makers support ethanol.

The CARB and Whitten studies assumed current standards. That means that ethanol blends used in these ozone exceedance areas had to meet the same volatility standards as MTBE blends. However, a series of studies done in the early 1990s concluded that even if ethanol blends were allowed a higher volatility in RFG areas (that is, urban areas that exceed ozone standards), the reduction in VOC emissions' reactivity and in carbon monoxide emissions resulting from a 10 percent ethanol blend offsets the increase in mass VOC emissions and in NO_x.

The most comprehensive study was done in Chicago. "(T)he objective of this study is to examine the net balance between the compensating effects of the higher vapor pressure," the authors explained. "(T)he results of this study essentially show no difference in ozone formation between the two candidate oxygenates...As used in this study, the model generated a maximum ozone concentration of 116.7 ppb if all gasoline contained 11 percent MTBE while the simulated maximum ozone concentration from the 10 percent ethanol blend was 116.2 ppb."¹³

Several years later the National Research Council came to the same conclusion. As the Chairman of its Committee on Ozone-Forming Potential of Reformulated Gasoline reported, "the overall impact on ozone of ethanol-containing fuel with 1 psi higher RVP would likely be quite small".¹⁴

NOTES

*Dr. David Morris is Vice President of the Institute for Local Self-Reliance and the author of many reports on ethanol and rural economic development. Dr. Jack Brondum is an epidemiologist and former public health official.

1 The NESCAUM document continues, "This conclusion stems largely from the fact that many of the toxins reduced by using RFG are far more potent than MTBE and that tens of millions of Northeasterners benefit from ozone reductions and reduced vehicle air toxic emissions, while contaminated drinking water affects a relatively small percentage of Northeasterners." *The Health Effects of Gasoline Constituents*. August 1999. NESCAUM. p. 4.

2 Background air has concentrations of ozone of 30-50 ppb or higher. In some western areas of the country with heavy vegetation, ozone concentrations of 50-75 ppb are not uncommon. *EPA Ozone Staff Paper*. EPA/R June 1996. pp. 20-21.

3 Kenneth Chilton, *EPA's Case for New Ozone and Particulate Standards: Would Americans Get Their Money's Worth?* June 1997. In 1986 the EPA concluded, "reported effects on the incidence of acute respiratory illness and on physician, emergency room, and hospital visits are not clearly related with acute exposure to ambient ozone or oxidants and, therefore, are not useful for deriving health effects criteria for standard-setting purposes. Likewise, no convincing association has been demonstrated between daily mortality and daily oxidant concentrations; rather, the effect correlates most closely with elevated temperatures." EPA, *Air Quality Criteria for Ozone and Other Photochemical Oxidants*. EPA August 1986. More recently, the EPA has concluded that ozone can cause a wide range of respiratory symptoms including coughing, throat irritation, chest pain, shortage of breath and increased susceptibility to respiratory infection. The effects on people who are asthmatics can be severe and result in hospital admissions. Most if not all of the acute effects are temporary and reversible. The EPA cites a "possibility" that repeated inflammation associated with ozone could do sufficient damage to lungs to affect people's quality of life as they grow older, but concedes that these relationships are "highly uncertain". The EPA does not assert that ozone kills people. J.W. Anderson, *Revising the Air Quality Standards*. Resources for the Future. 1999. "Typical subjects experience less than a 5 percent loss in lung function even at the highest ozone levels recorded in the United States in 1996 (about twice the current standard)". While noting that the decrement in lung function is transitory and reversible, the staff paper conjectures that people with preexisting illnesses that limit pulmonary function may suffer more significant effects but notes, "Unfortunately, not enough is known about the responses of these individuals to make definitive conclusions regarding their relative sensitivity to O₃". *Ozone Staff Paper*. EPA/R June 1996. pp. 20-21 and p. 55.

4 44 *Federal Register* 8220, February 8, 1979. Also see Kenneth Chilton and Anne Sholtz, *Battling Smog: A Plan for Action*. Formal Publication No. 93. St. Louis. Center for the Study of American Business. Washington University. September 1989 pp 7-14 for review of clinical studies.

5 R.G. Whitfield, *A Probabilistic Assessment of Health Risks Associated with Short Exposure to Tropospheric Ozone: A Supplement* (produced by Argonne National Laboratory, Argonne IL for U.S.EPA. January 1997. Table 6, as cited in Chilton, *EPA's Case for New Ozone and Particulate Standards*, Op. Cit.

6 *Ozone Forming Potential of Reformulated Gasoline*. NRC. Washington, D.C. September 1999. Statement by William L. Chameides, Chair of the National Research Council Committee on Ozone Forming Potential of Reformulated Gasoline before the Subcommittee on Energy and Environment, Committee on Science, U.S. House of Representatives. September 14, 1999.

7 Statement of Dr. Michael S. Graboski, Director, Colorado Institute for Fuel and High Altitude Engine Research, Colorado School of Mines, on behalf of NCGA. Committee on Commerce. Subcommittee on Health and Environment, US House of Representatives. March 2, 2000.

8 The NRC's report concludes, "The contribution of CO to ozone formation should be recognized in assessments of the effects of RFG". p. 6. CARB now gives a credit for carbon monoxide reductions in its

predictive atmospheric air quality model. The EPA may soon issue rules that would give gasoline blends that reduce carbon monoxide emissions a volatility credit of .2-.5 pounds per square inch.

9 Changes in carbon monoxide presented as reactivity adjusted to evaporative hydrocarbons.

10 Total HC and CO emissions. This row of figures contains weighted sums and is not a simple arithmetic sum of the four rows above.

11 Gary Whitten, Letter to the EPA regarding CARB request for waiver. February 7, 2000

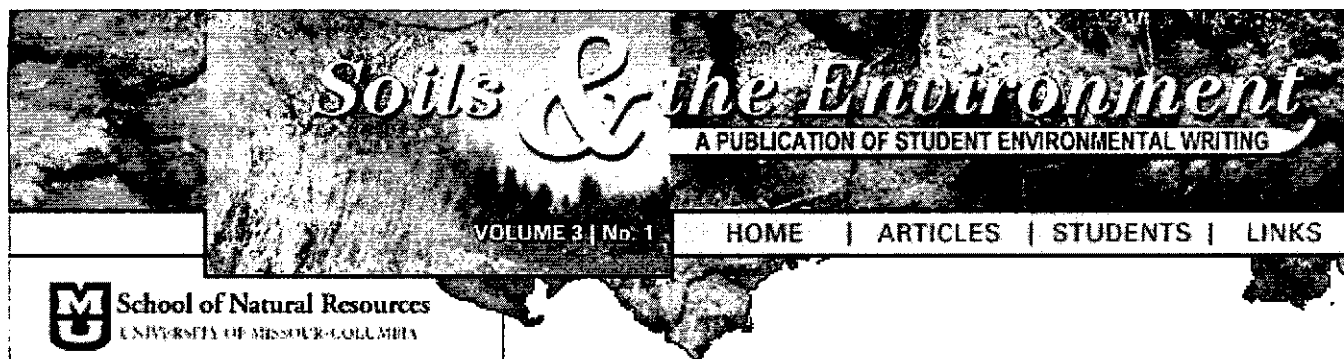
12 *Ibid.*

13 Gary Z. Whitten, et. al. *Comparison of the Air Quality Effects of Ethanol and MTBE in Reformulated Gasoline in the Lake Michigan Region*. July 26, 1993. SYSAPP-93/083. Prepared for Council of Great Lakes Governors, Chicago, IL.

14 Statement by William L. Chameides, Chair of the National Research Council Committee on Ozone Forming Potential of Reformulated Gasoline. Before the Subcommittee on Energy and Environment, Committee on Science, U.S. House of Representatives. September 14, 1999.

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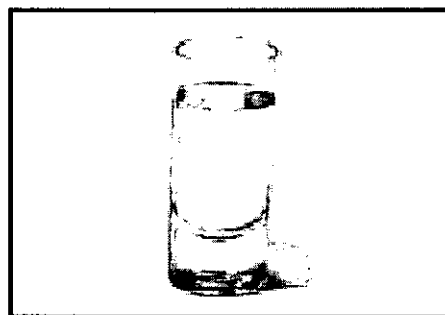


Mike Bates
 Hometown: Jefferson City, Missouri
 Major: Geology
 Career Goal: Environmental Work with
 Soil/Geology

MTV, SUV's and MTBE Just Another Part of American Culture

Human Health and Environmental Concerns Posed by Methyl Tertiary Butyl Ether
 By Michael D. Bates

Millions of Americans come into daily contact with Methyl Tertiary Butyl Ether (MTBE) while they fill up their vehicles at the gas pump. What many people do not realize is that they could be potentially damaging their water supply. Methyl Tertiary Butyl Ether is an additive in gasoline designed to increase octane and reduce emissions, but it often ends up finding its way into drinking water.



Background History on MTBE

When the U.S. placed a ban on leaded gasoline, the oil companies were forced to find an alternative method for combustible fuel that would be as efficient and inexpensive to manufacture as leaded gasoline had been. MTBE proved to be an ideal replacement for the discontinued lead-based additives and was ultimately chosen. According to the United States Geological Survey (USGS), MTBE has become the most popular oxygenate fuel additive due to its low cost, ease of production, and favorable transfer and blending characteristics.

In 1990 the Clean Air Amendment required that all metropolitan areas that failed to meet the Clean Air standard must switch from leaded to reformulated gasoline to comply with new Environmental Protection Agency (EPA) regulations. Thus to meet the demand, large scale production and national distribution of reformulated gasoline containing MTBE was instituted to aid in smog reduction. At the time, little was known about the possible dangers posed by MTBE to humans or the environment.

Sources of MTBE Release and Environmental Effects

MTBE poses no threat to the environment when it undergoes complete combustion or is exposed to the atmosphere where it decomposes rapidly. Degradation of the MTBE molecules however, does not proceed quite as readily if MTBE comes in contact with water. If the conditions are favorable,

Effect of MTBE on Humans

The EPA has conducted extensive testing on the effects of inhalation of MTBE. The EPA, however, has not conducted studies as to the effects of drinking, or skin absorption of MTBE. Studies of short-term exposure to MTBE that it is not a highly toxic compound. However, there is some preliminary data that supports the conclusion that MTBE may be a potential human carcinogen at higher levels. The EPA stresses that the effects of prolonged exposure to MTBE are not fully understood at this time. Due to the results of the studies conducted by the EPA, MTBE has been classified as a possible human carcinogen, but no official water quality specifications have been established. Currently, MTBE is on the list of unregulated contaminants, but is under consideration for future regulation with other contaminants.

Solution

Ironically, the EPA is currently considering outlawing Methyl Tertiary Butyl Ether as a lead based fuel additive. It was designed due to the risks it poses to the environment. Replacement of MTBE with some other alternative, such as ethanol, would require a phase-out period of several years. Meanwhile, efforts are being made to reduce the contamination by MTBE, according to the Department of the Missouri Department of Resources.

"The DNR is working diligently to safeguard the quality of drinking water for the population," Bungart said.

Some of the efforts are focused on the sources of pollution, such as leaking and underground storage containers. If petroleum storage tanks must be installed, safe devices, such as double hauled, puncture, and liners to prevent seepage. Installation of these new storage containers coupled with intensive monitoring may reduce many of the risks posed by MTBE to health and the environment.



MTBE can persist in ground water for months to years.

When gasoline containing MTBE is spilled or leaks from underground storage containers, MTBE is able to migrate rapidly through the soil profile unimpeded due to its extremely high solubility and low sorption to soil particles. Eventually MTBE winds up in subsurface and surface water supplies where it can contaminate large quantities of water. According to the USGS, one gallon of reformulated gasoline can contaminate 4 million gallons of water. The resulting water, which may contain as little as 20-40 parts per billion of MTBE, can have an unpleasant odor or taste.

For Further Information:

Missouri Department of Natural Resources
<http://dnr.state.mo.us/mtbe/homemtbe.htm>

United States Environmental Protection Agency
<http://www.epa.gov/mtbe/water.htm>

University California Davis
<http://tsrtp.ucdavis.edu/mtbe.htm>

United States Geologic Survey
<http://water.wr.usgs.gov/mtbe/fs20396/>

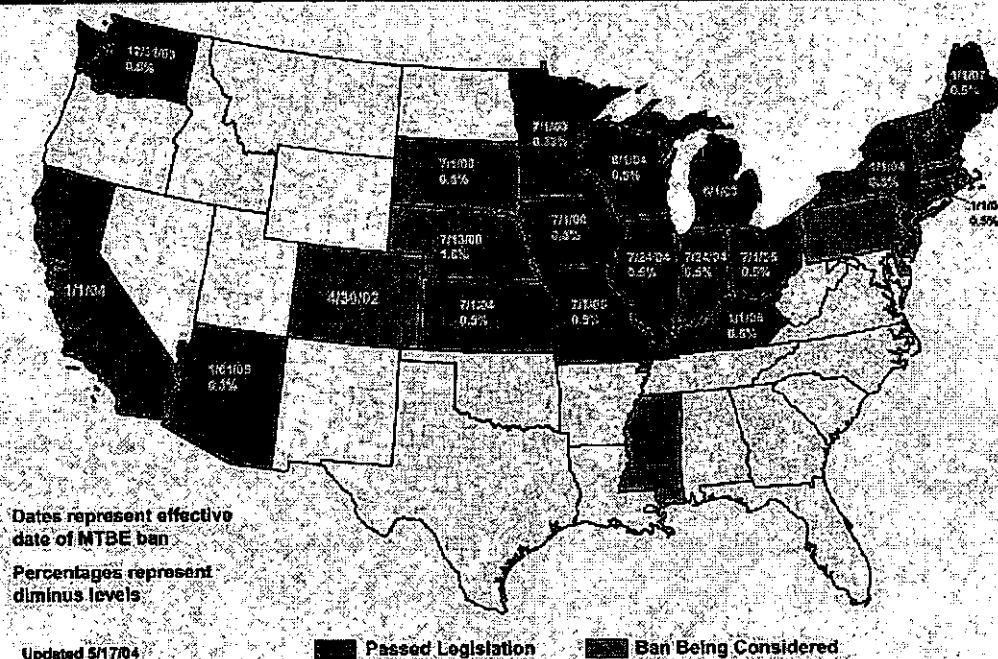
<http://www.planetark.com/envpicstory.cfm/newsid/17148> Picture #2

<http://www.epa.gov/safewater/psa.html> Picture #1

**MTV, SUV's and MTBE Just Another Part of American Culture
Human Health and Environmental Concerns Posed by Methyl Tertiary Butyl Ether**

By Michael D. Bates
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Soils 290 Tues. and Thru.
9:30-10:45

States with MTBE Restrictions



Other State Fuel Initiatives

Georgia's new gasoline standards for Atlanta were also discussed. Effective January 1, 2005, at retail, 13 central Atlanta counties require gasoline to meet Federal RFG and Georgia standards. The outlying 32 counties require gasoline meeting Georgia standards only. Passage of an energy bill with an RFG oxygenate waiver is not likely to occur anytime soon. Industry is responding to Georgia's mandate with millions of dollars in capital investments for ethanol storage and blending facilities in order to serve this market. Leidich also explained the biodiesel mandate in the State of Minnesota. Effective when biodiesel capacity in Minnesota reaches 8 million gallons and July 1, 2005 arrives, all diesel fuel sold or offered for sale for use in internal combustion engines must contain at least 2% biodiesel fuel by volume. According to Leidich, the anti-mandate lobbying efforts by the American Petroleum Institute (API) and the major oil companies had very little impact on this initiative.

Leidich also discussed the efforts by the Northeast States for Coordinated Air Use Management (NESCAUM) to adopt a regional gasoline by January 1, 2007. NESCAUM, which is comprised of New York, New Jersey, New Hampshire, Rhode Island, Vermont, Connecticut, Massachusetts and Maine, has set forth two fuel proposals, both of which are still under discussion. Of interest to the representatives of the NORA states was the discussion involving

NESCAUM's interest in adopting a low-sulfur heating oil standard of 500ppm or less. U.S. EPA does not have the authority under federal law to require a reduction in the amount of sulfur contained in heating oil.

EPA and Nonattainment Areas

Last April U.S. EPA published a list of 490 counties to be designated as out of attainment of federal air quality standards for ozone. These nonattainment areas have or contribute to ozone levels higher than allowed under U.S. EPA's 8-hour ozone national air quality standard. Leidich spent some time discussing how the designations may result in more stringent gasoline, manufacturing, storage, distribution and retailing controls in many counties across the country. The new designations took effect on June 15, 2004, and state and local governments must prepare a plan that describes their efforts to reduce ground-level ozone. The state and local governments must detail these efforts, or control requirements, in their State Implementation Plans (SIPs), which must be submitted to U.S. EPA within the next three years. Leidich added that the State of Ohio appealed U.S. EPA's implementation plan for the new ozone standard because it does not provide states with flexibility to choose how to meet the standard. The Ohio Attorney General filed the appeal in the D.C. Circuit Court of

continued on page 22