

## "The Efficiency of MTBE Use in Connecticut"

### Summary of Response

The addition of MTBE to gasoline is one of numerous strategies to reduce air pollution.

The use of MTBE in gasoline in Connecticut has likely had a positive effect on the reduction of carbon monoxide concentrations in the winter months and has contributed to a 40 percent reduction in concentrations and to attainment of the carbon monoxide air standards in Hartford and Fairfield counties.

The use of MTBE in gasoline in Connecticut may have contributed to a slight reduction in maximum ozone concentrations, but any such effect is not quantifiable.

MTBE has not been demonstrated to be a health hazard to humans in the concentrations of normal exposure. Harmful acute exposure requires very high concentrations but there are some eye and skin irritant effects. Chronic exposure has not yet shown any effects on humans although rats and mice can develop tumors. To date, there appears to be limited epidemiological evidence as to any correlation between MTBE exposure in humans and adverse health effects.

MTBE does provoke an odor response in humans because gasoline with MTBE can generally be detected at ten times lower concentrations than gasoline without MTBE.

The use of MTBE in gasoline in Connecticut would be expected to reduce air toxics concentrations in the air (benzene, ethyl benzene, toluene, xylenes and hexane). Simultaneous with these decreases would be increases in MTBE in the air.

The addition of MTBE to gasoline reduces the concentrations and exposure to the other components of gasoline which include known human carcinogens. Thus, the Northeast States for Coordinated Air Use Management concluded that there was a health benefit to the use of MTBE.

Gasoline contamination of water due to runoff is the result of spillage of gasoline, including leakage from underground tanks. Gasoline containing MTBE therefore results in spillage containing MTBE. Use of MTBE in gasoline does not "increase" contamination of groundwater or surface water in the sense that it does not increase spillage of gasoline. The Underground Storage Tank (UST) program (due to be completed at the end of 1998) is the primary program to reduce gasoline spillage. The efficiency of the UST program is central to future gasoline spills. It is likely the future gasoline spillage will occur despite the UST program. When gasoline with MTBE is spilled, the MTBE component of the gasoline goes farther and faster in groundwater than the other components of gasoline.

MTBE has been found in ground waters and surface waters of the state. Because it is relatively newly introduced to the environment, there are not yet developed the bacteria which generally convert other gasoline components and reduce their environmental impact.

The addition of MTBE to gasoline results in lower fuel efficiency, of the order of 1-3%.

The addition of MTBE to gasoline increases the cost of gasoline from 2 to 3.5 cents a gallon and, when combined with the fuel efficiency decrease, results in 2 to 4 cents a gallon reduced miles per dollar of gasoline. Other factors have substantially more impact on miles per dollar of gasoline.

Other actions which might be taken instead of adding MTBE to gasoline are reviewed in this report. They include the use of ethanol, Clean Burning Gasoline (CBG) equivalent non-MTBE gasoline, increased transportation control measures, and reductions in industrial emissions. They would not, however, provide the same air quality benefits without significantly increasing costs to the public or increasing toxic air pollutants.

In addition, Connecticut's options are limited by the US Environmental Protection Agency's (EPA) requirements and the coordination needed among other northeastern states to manage the regional problem of attaining the ozone standard. EPA is, however, changing its view on MTBE. A July 17, 1999 announcement by Administrator Carol Browner calls on Congress to revise the Clean Air Act to allow EPA to move away from the use of MTBE. Such a change would take some time and cause economic dislocations.

Three states have acted to eliminate the use of MTBE. Alaska acted early, requesting and obtaining a waiver from EPA because of odors in automobiles. Maine recently requested a waiver out of concern for groundwater and, due to their downwind status, the small role that emissions in Maine play in ozone. California has adopted a ban for 2002 based upon the effect on groundwater.

Thus, the current choice is between cutting air pollution (carbon monoxide, ozone and air toxics) and cutting groundwater remediation difficulties. In the future, a gasoline may be available to Connecticut (at increased cost) which will not require this choice.

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