

State of California  
AIR RESOURCES BOARD

**Updated Informative Digest**

**PUBLIC HEARING TO CONSIDER AMENDMENTS TO THE CALIFORNIA REFORMULATED GASOLINE REGULATIONS TO POSTPONE IMPOSITION OF THE CaRFG3 STANDARDS AND THE PROHIBITION OF MTBE AND OXYGENATES OTHER THAN ETHANOL IN CALIFORNIA GASOLINE FROM DECEMBER 31, 2002 TO DECEMBER 31, 2003**

**Sections Affected:** Amendments to sections 2261, 2262, 2262.4, 2262.5, 2262.6, 2262.9, 2265, 2266.5, 2269, 2270, 2271, 2272, and 2296 of Title 13, California Code of Regulations (CCR).

**Background**

The California Air Resources Board (ARB or Board) administers the Phase 2 California Reformulated Gasoline (CaRFG2) regulations, which have applied to all California gasoline since March 1996. The regulations establish standards for the following eight gasoline properties: sulfur, benzene, olefin, aromatic hydrocarbon, and oxygen contents, the 50 percent distillation temperature, (T50), the 90 percent distillation temperature, (T90), and summertime Reid vapor pressure (RVP).

The CaRFG regulations allow refiners to use a "Predictive Model" to specify alternative formulations. The Predictive Model is a set of mathematical equations that relate emissions rates of exhaust hydrocarbons, oxides of nitrogen (NO<sub>x</sub>), and potency weighted toxics for four toxic air contaminants (benzene, 1,3-butadiene, formaldehyde, and acetaldehyde) to the values of the eight regulated gasoline properties. An alternative gasoline formulation is acceptable if emissions of hydrocarbons, NO<sub>x</sub>, and potency-weighted toxics resulting from this formulation are no greater than emissions from gasoline having the specifications set forth in the CaRFG2 standards. Currently, most of the gasoline sold in California complies with the CaRFG2 regulations through the use of the Predictive Model.

Since 1995, most of the state's gasoline has contained about 11 percent methyl tertiary butyl ether (MTBE), which, along with ethanol, is an oxygenate that is used to introduce oxygen into gasoline and to improve octane. The widespread use of MTBE has primarily resulted from two programs mandated by the federal Clean Air Act (CAA) – the federal reformulated gasoline (RFG) program administered directly by the U.S. Environmental Protection Agency (U.S. EPA), and the wintertime oxygenates program which is ultimately administered by ARB. In areas not subject to the federal RFG or the CO wintertime oxygen requirements, the Predictive Model may be used to reduce or eliminate oxygen in California gasoline.

One of the requirements for federal RFG is that it contain at least 2.0 weight % oxygen year-round in on-road vehicles in severe and extreme non-attainment areas for ozone. In 2003, the federal RFG requirements will apply in San Diego County, the greater Los Angeles area (Los Angeles, Orange and Ventura Counties, and parts of Riverside and San Bernardino Counties), the greater Sacramento area (Sacramento County and parts of Yolo, Solano, Sutter, Placer, and El Dorado Counties), and the San Joaquin Valley Air Basin. Together, these areas account for about 80 percent of the gasoline sold in California. California has asked U.S. EPA to exercise its authority to waive the minimum oxygen requirement, but in June 2001 the agency denied the state's request. A lawsuit challenging the denial is currently pending in the U.S. Court of Appeals for the Ninth Circuit.

California's wintertime oxygenates requirements have resulted from requirements in the federal CAA that states mandate the use of oxygenated gasoline during the winter in most areas that are in nonattainment of the National Ambient Air Quality Standard (NAAQS) for carbon monoxide (CO). The use of oxygen in gasoline reduces emissions of CO from the existing vehicle fleet, and ambient CO concentrations are the highest in the winter. As ambient CO concentrations have declined in California as a result of fleet turnover, the ARB has been able to eliminate the winter oxygen requirement in areas where it is no longer necessary for attainment and maintenance of the NAAQS for CO. At present, the ARB requires a wintertime minimum oxygen content of 1.8 wt.% only in Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial counties.

Several years ago, concerns began to increase about adverse environmental impacts from the use of MTBE in the state's gasoline. The main concern with the continued use of MTBE is the potential for contamination of California's groundwater, surface water, and drinking water systems. MTBE is very soluble in water and will transfer to groundwater faster, and will travel farther and more easily than other gasoline constituents when gasoline leaks from underground storage tanks or pipelines.

The California MTBE Public Health and Environmental Protection Act of 1997 directed the University of California (U.C.) to conduct research on the effects of MTBE. The legislation also required the Governor to take appropriate action based on the U.C. findings and information from public hearings conducted on the U.C. report. On March 25, 1999, Governor Davis signed Executive Order D-5-99, in which he found that, on balance, there is a significant risk to the environment from using MTBE in gasoline in California. The Executive Order directed the California Energy Commission (CEC) to issue a timetable for the removal of MTBE from gasoline at the earliest possible date, but not later than December 31, 2002. It also directed the ARB to adopt CaRFG3 regulations that will provide additional flexibility in lowering or removing the oxygen content requirement while maintaining current emissions and air quality benefits and ensuring compliance with the State Implementation Plan (SIP).

At a December 9, 1999, hearing, the Board approved the CaRFG3 regulations consistent with the Governor's directive and the subsequent CEC recommendation that December 31, 2002 was the earliest feasible date for a ban on MTBE. The CaRFG3 regulations prohibited California gasoline produced with MTBE starting December 31, 2002, established CaRFG3 standards applicable the same date, established a CaRFG3 Predictive Model, and made various other changes. The CaRFG3 standards modify the specifications for 5 of the 8 gasoline properties regulated by CaRFG2, with the objective of providing additional flexibility in lowering or removing the oxygen content requirement while maintaining current emissions and air quality benefits.

The CaRFG3 regulations ban gasoline produced with the use of MTBE, for all California gasoline supplied from production and import facilities starting December 31, 2002. The prohibition is phased in for most deliveries of gasoline to retail outlets occurring after February 13, 2003, and to gasoline throughout the distribution system starting March 31, 2003. The regulations also established a three-stage schedule for reducing residual MTBE levels. The regulations require that the concentration of MTBE in distributed CaRFG3 not exceed 0.3 percent, by volume, beginning December 31, 2002. This level is reduced to 0.15 percent by volume starting December 31, 2003 and 0.05 percent by volume starting December 31, 2004.

The CaRFG3 regulations also place a conditional ban, starting December 31, 2002, on the use of any oxygenate other than ethanol, as a replacement for MTBE in California gasoline. Such oxygenates may not be used to produce California gasoline unless a multimedia evaluation of the use of the oxygenate in California gasoline has been conducted, and the California Environmental Policy Council has determined that its use will not have a significant adverse impact on the public health or the environment.

### **The New Amendments**

Current information indicates that the timetable adopted in 2000 for removal of MTBE would not satisfy the directive of Executive Order D-5-99 that the timetable ensure adequate supply and availability of gasoline for California consumers. The results of a study commissioned by the CEC in 2001 show that phasing out MTBE from gasoline by the end of 2002 could result in a gasoline supply shortfall, which could in turn result in price levels that are 50 to 100 percent higher than normal. Further, there still exists uncertainty regarding the supply and availability of ethanol necessary to meet California's requirements.

On March 14, 2002, Governor Davis issued Executive Order D-52-02, which directed the ARB to take the necessary actions, by July 31, 2002, to postpone for one year the prohibitions of the use of MTBE and other specified oxygenates in California gasoline, and the related requirements for California Phase 3 reformulated gasoline. The Governor found that it is not possible to eliminate use of MTBE on January 1, 2003 without

significantly risking disruption of the availability of gasoline in California. This would substantially increase prices, harm California's economy and impose an unjustified burden upon our motorists.

In this rulemaking the ARB has adopted amendments to the CaRFG3 regulations consistent with the Governor's Executive Order D-52-02, along with a few other amendments designed to ensure that the regulations work effectively.

**Prohibitions regarding MTBE and other oxygenates other than ethanol.** The amendments postpone the prohibition of the use of MTBE and other oxygenates other than ethanol in California gasoline supplied by refiners and importers from December 31, 2002 to December 31, 2003, with the downstream phase-in requirements also postponed by one year. Similarly, the schedule for reducing residual levels of MTBE in CaRFG3 would be postponed one year. Starting December 31, 2003, California gasoline could not contain more than 0.30 volume percent MTBE. This residual limit of 0.15 volume percent MTBE would apply starting December 31, 2004, with the 0.05 volume percent residual limit starting December 31, 2005.

**Delaying imposition of the CaRFG3 standards.** The amendments also postpone the imposition of the CaRFG3 standards for gasoline properties for one year, from December 31, 2002 to December 31, 2003. With the delay in the prohibition of the MTBE prohibition, it is appropriate to allow refiners to meet the CaRFG2 standards for an additional year for producing gasoline oxygenated with MTBE. However, individual refiners importers will retain the ability to elect to have batches of gasoline subject to the CaRFG3 standards – including the prohibition of MTBE – prior to December 31, 2003. The amendments also delay for one year (from December 31, 2004 to December 31, 2005) the reduction of the CaRFG3 sulfur content cap limit from 60 parts per million (ppm) to 30 ppm.

The amendments also provide a gasoline producer or importer the option of electing to have the March 1 start of the RVP season delayed until April 1 in either 2003 or 2004 (but not both) at each production and import facility. If the delay occurs in 2003, it would only apply to gasoline designated as subject to the CaRFG3 standards, and to CaRFG2 that is produced without the use of MTBE or other oxygenates other than ethanol.

**Other amendments.** Additional amendments are designed to ensure that the CaRFG regulations work effectively, provide additional flexibility where feasible, and correct errors. One set of amendments simplifies the testing provisions for determining whether gasoline blendstock designed for blending with ethanol will comply with the CaRFG standards after it is oxygenated. Another amendment corrects errors in the assignment of RVP regulatory control periods for the North Coast Air Basin and the North Central Coast Air Basin.

## **COMPARABLE FEDERAL REGULATIONS**

As noted above, the U.S. EPA administers the federal RFG regulations, which currently apply to about 70 percent of California's gasoline and are contained in 40 CFR §§ 80.40 and following. The federal RFG regulations do not prohibit the use of MTBE.