

State of California  
California Environmental Protection Agency  
**AIR RESOURCES BOARD**

**Supplement to the  
Final Statement of Reasons for Rulemaking  
Including Summary of Comments and Agency Response**

PUBLIC HEARING TO CONSIDER AMENDMENTS TO THE CALIFORNIA  
REFORMULATED GASOLINE REGULATIONS, INCLUDING A DECEMBER 31,  
2002 PROHIBITION OF USING MTBE IN GASOLINE, ADOPTION OF PHASE 3  
GASOLINE STANDARDS, A PHASE 3 PREDICTIVE MODEL, AND OTHER  
CHANGES

Public Hearing Date: December 9, 1999  
Agenda Item No: 99-10-3

Supplement Prepared August 3, 2000

Additional Comment: On p. i of the Executive Summary in the Staff Report, it is stated that CaRFG2 regulations have provided very significant reductions of air pollutants. Reference to Figures 1, 2, 3, 4, 5, and 6 and Table I of my comments reveals that this statement is not fact. California's air quality improvement is due primarily to a growing proportion of post-1985 vehicles in the vehicle fleet – vehicles whose tailpipe emissions of HC, CO and NO<sub>x</sub> are 70-80% lower than earlier models – and not to the use of CaRFG2 (with MTBE). In fact, post 1989 vehicles exhibit the same low emissions with or without oxygenated fuel. In particular, note from Figure 6 the substantial reductions in ozone and CO that occurred from 1989-1995 in the absence of CaRFG2; these reductions were due solely to a growing proportion of improved technology vehicles with significantly lower tailpipe emissions. Further, it should be noted that with the introduction of CaRFG2 in 1996, there has been essentially no change in the rate of improvement of California air quality. (Thomas A. Ring)

Agency Response: The staff's estimates of the emissions reductions from CaRFG2 are based on data from vehicle emissions test programs, especially those conducted by the Auto/Oil Air Quality Improvement Test Program. The findings of substantial emissions reductions are consistent with the Auto/Oil results. While vehicle emission controls of course have a major impact on emissions, the studies evaluated different fuels used in the same test vehicles. Indeed, the commenter's Figures 2-4 reflect the emissions reductions attributable to reformulated gasoline.

The analysis performed by the commenter to estimate the air quality improvement resulting from the Phase 2 CaRFG regulations does not take into consideration the effects of meteorology on air quality. Meteorological conditions strongly affect air pollution levels, and can vary significantly from year to year. This is the reason that, despite the fact that the commenter's Figure 6 shows a significant overall downward trend in

ambient ozone from 1986 to 1998, it shows *increases* for 1987, 1994 and 1997. The National Research Council's 1999 report *Ozone-Forming Potential of Reformulated Gasoline*, referenced in the Staff Report: Initial Statement of Reasons, concluded that "the detection of any abrupt change [in ozone] of the order of 10% or less and its attribution to a specific control of an emission is a formidable task." (at 165) Since ambient benzene concentrations are not dependent of the photochemical reactions that form ozone, they are somewhat less dependent on meteorology. As noted on page 9 of the Staff Report, concentrations of benzene in the ambient air declined almost immediately by almost 50 percent following the inception of the CaRFG2 and federal RFG programs.

In 1992 the ARB implemented a regulation requiring the use of oxygenated gasoline during the wintertime for the purposes of achieving CO emissions reductions. The regulation achieved about a 10 percent reduction in CO emissions. As a result of the regulation, and the replacement of older cars with newer cars, most of the state is now in attainment with the federal CO air quality standards. This attainment has allowed the repeal of the wintertime oxygenate regulation in much of the state.

The use of oxygenates in gasoline is not needed to meet the requirements of the CaRFG2 or CaRFG3 gasoline regulations, except for the remaining wintertime requirements. The California Predictive Model allows refiners to comply with the regulations without the use of oxygenates, as long as equivalent reductions in emissions of hydrocarbons, oxides of nitrogen, and potency-weighted toxics are achieved. Some of the gasoline that has been produced in the San Francisco Bay area has been oxygenate-free. Only the federal reformulated gasoline regulations require the year-round use of oxygenate gasoline in California. The federal reformulated gasoline regulations are currently in effect only in Southern California and the Sacramento area.