

## TITLE 13. CALIFORNIA AIR RESOURCES BOARD

### NOTICE OF PUBLIC HEARING TO CONSIDER AMENDING THE TEST METHODS DESIGNATED FOR DETERMINING THE BENZENE, AROMATIC HYDROCARBON, OLEFIN AND SULFUR CONTENT OF PHASE 2 GASOLINE

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider amending its regulations to update the methods designated for determining the benzene, aromatic hydrocarbon, olefin and sulfur content of Phase 2 gasoline.

DATE: October 26, 1995

TIME: 9:30 a.m.

PLACE: Air Resources Board  
Board Hearing Room, Lower Level  
2020 L Street  
Sacramento, California

This item will be considered at a two-day meeting of the Board, which will commence at 9:30 a.m., October 26, 1995 and may continue at 8:30 a.m., October 27, 1995. This item may not be considered until October 27, 1995. Please consult the agenda for the meeting, which will be available at least 10 days before October 26, 1995, to determine the day on which this item will be considered.

### INFORMATIVE DIGEST OF PROPOSED ACTION

Sections Affected: Proposed amendments to title 13, California Code of Regulations, section 2263(b).

#### Summary of Proposed Changes

California's Phase 2 reformulated gasoline (Phase 2 RFG) regulations establish specifications for eight properties of gasoline effective March 1, 1996. The specifications include limits on the content of benzene, aromatic hydrocarbons, olefins and sulfur. Staff proposes that the Board amend the designations of the test methods for measuring the content of these components according to Table 1.

Staff has arrived at these recommendations after several years of cooperative effort with members of the regulated industry, in particular the Western States Petroleum Association's (WSPA) Working Group on Fuels Test Methods and Subcommittee D2 of the American Society of Testing and Materials (ASTM). Staff has also carefully evaluated the test methods required by the U.S. Environmental Protection Agency (U.S. EPA).

Table 1. Proposed Test Method Changes

| Regulated Component        | Currently Adopted Method                      | Proposed Method  |
|----------------------------|---|--|
| Benzene                    | ASTM D3606-87<br>MLD 116 (If ethanol present) | ASTM D5580-9x  |
| Aromatic Hydrocarbons      | MLD 116                                       | ASTM D5580-9x  |
| Olefins                    | ASTM D1319-89                                 | ASTM D1319-9x <sup>a</sup>   |
| Sulfur<br>30 ppm and above | ASTM D2622-87                                 | ASTM D2622-94 <sup>b, c</sup><br>or<br>ASTM D5453-93<br>with correlation<br>to ASTM D2622-94 |
| 1 ppm to < 30 ppm          |   | ASTM D5453-93  |

<sup>a</sup> The published precision statement for this method will be replaced by a precision statement derived from recent ASTM-sponsored interlaboratory testing using oxygenated gasolines.

<sup>b</sup> The published precision statement for this method will be replaced by a precision statement based on data from recently completed interlaboratory testing conducted by WSPA with participation from ARB.

<sup>c</sup> The published calibration procedure of this method will be superseded by a procedure that is more accurate for low sulfur content gasoline.

## Proposed Changes and Rationale

### Benzene

Staff is proposing that the Board designate ASTM D5580-9x (the current draft revision of this test method) in place of ASTM D3606-87 and MLD 116 for measuring benzene in gasoline. MLD 116 was adopted for gasolines containing ethanol because it was recognized that ethanol interferes with the benzene determination using ASTM D3606.

ASTM D5580-9x is more reproducible than the currently adopted method and does not have the interferences that both adopted methods were shown to have. ASTM D5580-9x is

considerably more cost effective and practical than several of the alternative methods although not quite as precise. Methods for measuring benzene are usually linked to the determination of total aromatics and therefore in selecting a suitable method, both measurements were considered together.

#### Aromatic Hydrocarbons

Staff is proposing that the Board designate ASTM D5580-9x for measuring the aromatic hydrocarbon content of gasoline. The currently adopted method, MLD 116, has potential interferences that do not appear in ASTM D5580. Recent interlaboratory testing has shown ASTM D5580-9x to be the most precise of several methods including GC/MS, the method adopted by the U.S. EPA, GC/FTIR, and ASTM D1319. In addition to being more precise, ASTM D5580 is also more cost effective and practical than the alternative methods considered.

Interlaboratory testing of identical gasoline samples has shown that differences in measurement results exist among the candidate methods. ASTM D5580 measurement results of total aromatic hydrocarbon content were slightly higher than results from other methods and this is of some concern to industry representatives. Further testing is underway at several laboratories to investigate the source(s) of the discrepancy among all the aromatics test methods. Nevertheless, the consensus of the ASTM and WSPA participants at this time is that ASTM D5580 is the best method available from the standpoint of precision, cost effectiveness and practicality.

#### Olefins

Staff is proposing that the designated test method for measuring olefins in gasoline be changed from ASTM D1319-89 to ASTM D1319-9x (the current draft revision of this test method). D1319-9x is identical in most respects to D1319-89 except that the scope of the method has been expanded to include oxygenated gasolines.

Staff also proposes to add regulatory language to modify the precision statement incorporated with the method. The precision statement in ASTM D1319-9x is not applicable to oxygenated gasolines. The proposed precision statement was obtained from recent interlaboratory testing carried out by ASTM participants and will eventually be added to the test method.

#### Sulfur

Staff is proposing that several changes be made to the designated test method for measuring sulfur in gasoline. First, the currently designated test method, ASTM D2622-87, should be redesignated to ASTM D2622-94, the latest revision of that test method. ASTM D2622-94 contains only editorial changes relative to ASTM D2622-87. However, staff is proposing to add regulatory language to update the calibration procedure and the precision statement of

ASTM D2622-94. The change in calibration procedure is needed to make the method more accurate for measuring the low levels of sulfur in Phase 2 gasoline. The change in the precision statement is necessary because the current precision statement is outdated and not readily applicable to Phase 2 gasoline. The new precision statement is based on interlaboratory testing completed recently. This testing was sponsored by WSPA with ARB participation. The interlaboratory testing was carried out following ASTM protocol and used a wide range of low-sulfur Phase 2 gasoline.

The second proposed change is the designation of a new test method, ASTM D5453-93, for measuring very low sulfur gasoline; sulfur at levels between 1 and 30 ppm. Measurements using ASTM D2622-94 become very imprecise below 30 ppm and the method detection limit is 10 ppm. Because of the RFG regulations' averaging provisions and allowances made for alternative formulations, it is anticipated that gasoline blends will be produced at concentrations well below the flat limit of 40 ppm. ASTM D5453-93 is being proposed because it is applicable in the concentration range of interest and is reasonably precise.

ASTM D5453-93 is also applicable in the higher concentrations covered by ASTM D2622 and has a similar reproducibility. Thus the final proposed change for the designated sulfur test method is the designation of ASTM D5453-93 as an alternate test method to ASTM D2622-94 when measuring sulfur at concentrations of 30 ppm and above. However, ASTM D5453-93 is permitted with the stipulation that measurements made using ASTM D5453-93 be corrected for any bias between ASTM D5453 and ASTM D2622. The designation of ASTM D5453-93 as an alternate method will permit laboratories to utilize one method for making both high and low sulfur measurements. The provision for a bias correction will assure that discrepancies do not arise between laboratories utilizing different methods to analyze the same gasoline.

### **Federal Requirements**

The U.S. Environmental Protection Agency (U.S. EPA) administers regulations requiring that gasoline sold in various areas with poor air quality meet standards for "federal" reformulated gasoline. These regulations have applied in most of Southern California since December 1994. The test procedures required by federal regulations are shown in Table 2 (40 C.F.R. sec. 80.46(g)).

The ARB has worked with the U.S. EPA and gasoline producers to avoid unnecessary duplication and conflicts between the federal and state enforcement requirements. As a result of this cooperative effort, the federal regulations allow producers and importers of California gasoline to use a test method specified in the ARB's Phase 2 RFG regulations in lieu of the otherwise applicable federal method. (40 C.F.R. sec. 80.81(h).)

Table 2. Comparison of U.S. EPA vs ARB Test Procedures

| Regulated Component | U.S. EPA Method   | ARB Proposed Method  |
|---------------------|---|--|
| Benzene             | ASTM D3606-87   | ASTM D5580-9x  |
| Aromatics           | GC/MS or ASTM D1319-89<br>with correlation to GC/MS<br>until 1997 | ASTM D5580-9x  |
| Olefins             | ASTM D1319-89   | ASTM D1319-9x  |
| Sulfur              | ASTM D2622-87   | ASTM D2622-94<br>or ASTM D5453-93<br>w/correlation to<br>ASTM D2622-94 |

#### AVAILABILITY OF DOCUMENTS AND CONTACT PERSON

The Board staff has prepared a staff report which includes the initial statement of reasons for the proposed action and a summary of the environmental impacts of the proposal, if any. Copies of the Staff Report and the full text of the proposed regulatory language may be obtained from the Board's Public Information Office, 2020 L Street, Sacramento, CA 95814, (916) 322-2990. The Board staff has compiled a record which includes all information upon which the proposal is based. This material is available for inspection upon request to the contact person identified immediately below.

Further inquiries regarding this matter should be directed to Mr. Paul L. Rieger, Spectroscopist, Southern Laboratory Branch, Monitoring and Laboratory Division, 9528 Telstar Ave., El Monte, California 91731, at (818) 575-6876.

#### COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred in reasonable compliance with the proposed regulations are presented below.

The Executive Officer has determined that the proposed regulatory action will not create costs or savings, as defined in Government Code section 11346.5(a)(6), to any state agency or in federal funding to the state, costs or mandate to any local agency or school district whether or not reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code, or other nondiscretionary savings to local agencies.

The Executive Officer has also determined that adoption of the proposed regulatory action will not have a significant adverse economic impact on large or small businesses, including the ability of California businesses to compete with businesses in other states.

In accordance with Government Code section 11346.3, the Executive Officer has determined that the proposed regulatory action will not affect the creation or elimination of jobs within the State of California, the creation of new businesses or elimination of existing businesses within California, or the expansion of businesses currently doing business within California. An assessment of the economic impacts of the proposed regulatory action can be found in the staff report.

The Executive Officer has determined that there will be no, or an insignificant, potential cost impact, as defined in Government Code section 11346.5(a)(9), on private persons or businesses directly affected resulting from the proposed action.

The Executive Officer has also determined, pursuant to Government Code section 11346.5(a)(3)(B), that the proposed regulatory action will not affect small business. The reasons for this determination are that small businesses are not required to measure the components specified in Phase 2 gasoline regulations and that any benefit derived or detriment incurred by small business from enforcement of the amendments would be de minimis.

Before taking final action on the proposed regulatory action, the Board must determine that no alternative considered by the agency would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

### **SUBMITTAL OF COMMENTS**

The public may present comments relating to this matter orally or in writing. To be considered by the Board, written submissions must be addressed to and received by the Board Secretary, Air Resources Board, P.O. Box 2815, Sacramento, CA 95812, no later than 12:00 noon, October 25, 1995, or received by the Board Secretary at the hearing.

The Board requests but does not require that 20 copies of any written statement be submitted and that all written statements be filed at least 10 days prior to the hearing. The Board encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action.

### **STATUTORY AUTHORITY AND HEARING PROCEDURES**

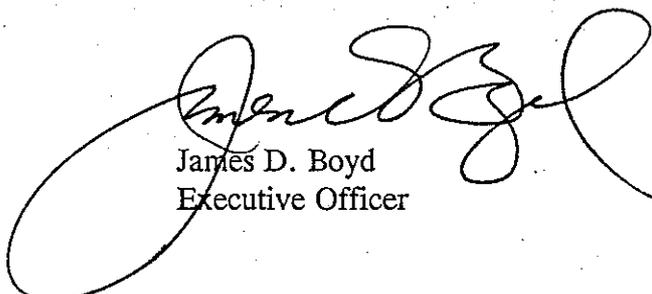
This regulatory action is proposed under that authority granted in Health and Safety Code sections 39600, 39601, 43013, 43018, 43101; and Western Oil and Gas Ass'n. v. Orange County Air Pollution Control District, 14 Cal. 3d 411, 121 Cal. Rptr. 249 (1975). This action

is proposed to implement, interpret and make specific Health and Safety Code Sections 39000, 39001, 39002, 39003, 39010, 39500, 39515, 39516, 39606, 41511, 43000, 43016, 43018, and 43101; and Western Oil and Gas Ass'n. v. Orange County Air Pollution Control District, 14 Cal. 3d 411, 121 Cal. Rptr. 249 (1975).

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Title 2, Division 3, Part 1, Chapter 3.5 (commencing with Section 11340) of the Government Code.

Following the public hearing, the Board may adopt the regulatory language as originally proposed, or with nonsubstantial or grammatical modifications. The Board may also adopt the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice that the regulatory language as modified could result from the proposed regulatory action; in such event the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15 days before it is adopted. The public may request a copy of the modified regulatory text from the Board's Public Information Office, 2020 L Street, Sacramento, CA 95814, (916) 322-2990.

CALIFORNIA AIR RESOURCES BOARD



James D. Boyd  
Executive Officer

Date: August 29, 1995