Attachment B

California Environmental Protection Agency
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER AMENDING THE TEST METHODS DESIGNATED FOR DETERMINING OLEFIN CONTENT AND DISTILLATION TEMPERATURES OF GASOLINE

November 16, 2000

Staff's Suggested Changes to the Original Regulatory Proposal

The following pages show staff's suggested changes to the proposed amendments to the designations of test methods for determining olefin content and distillation temperatures of gasoline. The only effect of the modifications would be to reflect staff's original intent, as stated in the hearing notice and Staff Report text, that the new olefin test method not become applicable until January 1, 2002. This will provide appropriate lead time for entities that may need to acquire supercritical fluid chromatography (SFC) test equipment.

MODIFIED PROPOSED REGULATION ORDER

Amend section 2263(b), Title 13, California Code of Regulations, to read as follows:

[Note: The originally proposed amendments for this rulemaking action are shown in ~~strikethrough~~ to indicate proposed deletions and underline to indicate proposed additions. Modifications to the original proposal are shown in ~~double strikethrough~~ to indicate deletions and double underline to indicate additions. Headings are shown in ***bold italics***, and are to be italicized in Barclays California Code of Regulations.]

Section 2263. Sampling Procedures and Test Methods

(a) ***Sampling Procedures.*** In determining compliance with the standards set forth in this subarticle 2, an applicable sampling methodology set forth in 13 C.C.R. section 2296 shall be used.

(b) ***Test Methods*.**

(1) In determining compliance with the standards set forth in this subarticle 2, the test methods presented in Table 1 shall be used. All identified test methods are incorporated herein by reference.

Table 1

Section	***Gasoline Specification***	***Test Method*** [a]
2262.1	Reid Vapor Pressure	ASTM D 323-58 [b] or 13 C.C.R. Section 2297
2262.2	Sulfur Content	ASTM D 2622-94 [c, d] or ASTM D 5453-93
2262.3	Benzene Content	ASTM D 5580-95 [e]
2262.4	Olefin Content	~~ASTM D 1319-95a [f]~~ ASTM D 1319-95a [f] (Through December 31, 2001) ASTM D 6550-00~~f~~ [f,g,h,i] (Starting January 1, 2002)
2262.5	Oxygen Content	ASTM D 4815-94
2262.6	T90 and T50	ASTM D 86-~~90~~-99aε1
2262.7	Aromatic Hydrocarbon Content	ASTM D 5580-95 ~~g~~ [i]

_____

a Do not report values below the limit of detection (LOD) specified in the test method. Where a test method does not specify a LOD, do not report values below the lower limit of the scope of the test method.

b Delete paragraph 4(b) concerning sampling.

c Make the following modifications to paragraph 9.1:

Low Level Sulfur Calibration Procedure

Reagents
Thiophene, at least 99% purity
2-Methylthiophene, at least 98% purity
Toluene, reagent grade
2,2,4 - Trimethylpentane, reagent grade

Preparation of Stock Standard
Weigh standard materials thiophene (~0.7290 gm) and 2-methylthiophene (~0.7031 gm) separately into a tared volumetric flask and record the individual mass to 0.1 mg. Add a mixed solvent containing 25% toluene and 75% isooctane (by volume) into the flask to a net weight of approximately 50 gm and record the weight. This stock standard contains approximately 10 mg/gm sulfur. The actual sulfur concentration can be calculated as follows:

Sulfur from thiophene (gm) =
Weight of thiophene * 32.06 * purity / 84.14

Sulfur from 2-methylthiophene (gm) =
Weight of 2-methylthiophene * 32.06 * purity / 98.17

Sulfur concentration of Stock Standard (gm/gm) =
(sulfur from thiophene + sulfur from 2-methylthiophene) / net weight of the stock standard

Multiply the sulfur concentration by 1000 to convert the unit to mg/gm.

Preparation of Calibration Standards
Pipette 2.5 ml of the Stock Standard to 250 ml flask and dilute with the mixed solvent to the mark. The diluted standard contains approximately 100 mg/kg sulfur. Prepare 5, 10, 20, 30, 50, 75 ppm calibration standards by pipetting 5, 10, 20, 30, 50, 75 ml of the Diluted Standard into a 100 ml flask, respectively, and diluting with the mixed solvent to the mark. The actual concentration of the calibration standard should be determined from the stock standard. The standards with concentration ranging from 5 to 100 ppm and the mixed solvent are to be used for calibrating the instrument.

d Replace ASTM D 2622-94 reproducibility values with the following:

Sulfur Content, ppm	Reproducibility
10 to 30	40.5% X Sulfur Content (ppm)
>30	19.2% X Sulfur Content (ppm)

e The reproducibility of benzene is as follows:

Reproducibility = 0.1409 ($X^{1.133}$), where X = vol %

~~f Add the following reproducibility statement for oxygenate-containing samples:~~

	~~Range~~	~~Reproducibility~~
~~Olefins~~	~~0.3 - 33~~	~~$0.819 (X)^{0.6}$~~

~~X = Volume %~~

f Add the following reproducibility statement for oxygenate-containing samples:

	Range	Reproducibility
Olefins	0.3 - 33	$0.819 (X)^{0.6}$

X = Volume %

~~f~~ g Replace ASTM D6550-00 reproducibility equation with the following:

Reproducibility = $0.32\ X^{0.5}$
where X is between 0.3 and 25 mass % olefin

~~g The reproducibility of total aromatic hydrocarbon is as follows:~~

~~Reproducibility = 1.4 vol%~~

~~g~~ h The conversion from mass% olefin to volume% olefin is defined as follows:

volume% olefin = 0.857 * mass% olefin

~~h~~ i Replace the last sentence in ASTM D6550-00 section 1.1 with the following:

The application range is from 0.3 to 25 mass% total olefins.

~~i~~ j The reproducibility of total aromatic hydrocarbon is as follows:

Reproducibility = 1.4 vol%

(c) ***Equivalent Test Methods.*** Whenever this section provides for the use of a specified test method, another test method may be used following a determination by the executive officer that the other method produces results equivalent to the results with the specified method.

NOTE: Authority cited: sections 39600, 39601, 43013, 43018, and 43101, Health and Safety Code; and Western Oil and Gas Ass'n. v. Orange County Air Pollution Control District, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: sections 39000, 39001, 39002, 39003, 39010, 39500, 39515, 39516, 41511, 43000, 43016, 43018, and 43101, Health and Safety Code; and Western Oil and Gas Ass'n. v. Orange County Air Pollution Control District, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).