

State of California  
AIR RESOURCES BOARD

Resolution 91-57

December 12, 1991

Agenda Item No: 91-12-1

WHEREAS, Health and Safety Code sections 39600 and 39601 authorize the Air Resources Board (the Board) to adopt standards, rules and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, Health and Safety Code section 43018(a), enacted by the California Clean Air Act of 1988, directs the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state ambient air quality standards at the earliest practicable date;

WHEREAS, Health and Safety Code section 43018(b) directs the Board no later than January 1, 1992 to take whatever actions are necessary, cost-effective, and technologically feasible in order to achieve, by December 31, 2000, a reduction of reactive organic gases ("ROG") of at least 55 percent and a 15 percent reduction in the emissions of oxides of nitrogen ("NOx") from motor vehicles, and the maximum feasible reductions in particulates ("PM"), carbon monoxide ("CO"), and toxic air contaminants from vehicular sources;

WHEREAS, Health and Safety Code section 43018(c) provides that in carrying out section 43018, the Board shall adopt standards and regulations which will result in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel, including but not limited to specification of vehicular fuel composition;

WHEREAS, Health and Safety Code section 43013 authorizes the Board to adopt and implement motor vehicle fuel specifications for the control of air contaminants and sources of air pollution which the Board has found to be necessary, cost-effective, and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, section 211(m) of the federal Clean Air Act as amended in 1990 requires states containing specified CO nonattainment areas to submit revisions to their State Implementation Plans ("SIPs") requiring that gasoline sold for use in the areas contain not less than 2.7 percent oxygen by weight during the high CO winter period specified by the Administrator of the U.S. Environmental Protection Agency ("EPA") starting November 1, 1992 or such other date in 1992 established by the Administrator; eight areas in California are among those for which such SIP revisions must be submitted;

WHEREAS, section 211(m)(3)(A) of the federal Clean Air Act directs the EPA Administrator to waive, in whole or part, the SIP revision requirements pertaining to the minimum oxygen content of gasoline upon a demonstration by a state to the Administrator's satisfaction that the use of oxygenated gasoline would prevent or interfere with the attainment by the areas of a

national primary ambient air quality standard, or a state ambient air quality standard, for any pollutant other than CO;

WHEREAS, the staff has initially proposed the adoption of a regulation that would establish requirements pertaining to the minimum and maximum oxygen content of gasoline from September 1992 through December 1995; these requirements would include the following elements:

Gasoline would be required to have an oxygen content of not less than 1.8 percent and not more than 2.2 percent by weight from November 1 through February 29 in the South Coast, San Diego, South Central Coast and Southeast Desert Air Basins, and from November 1 through January 31 in all other air basins; and

Gasoline would be required to have an oxygen content of not more than 2.2 percent, with no required minimum, in September and October in the South Coast Air Basin and Ventura County, and in October in all other air basins except the San Diego, South Central Coast (except Ventura County) and the Southeast Desert Air Basins;

WHEREAS, the regulatory proposal would be effected by the adoption of Title 13, California Code of Regulations, section 2258 as set forth in Attachment A hereto;

WHEREAS, the regulatory proposal was made in conjunction with a proposal for Phase 2 reformulated gasoline regulations applicable starting January 1996, which included year-round requirements on the minimum and maximum oxygen content of gasoline; the Phase 2 reformulated gasoline regulations were approved by the Board on November 22, 1991 in Resolution 91-56, with a modified starting date of March 1, 1996;

WHEREAS, the portions of the proposed wintertime oxygenates regulations which for the identified control periods impose a minimum oxygen content of less than 2.7 percent will require a waiver of the federal Clean Air Act requirements pursuant to section 211(m)(3)(A) of that Act;

WHEREAS, the California Environmental Quality Act and Board regulations require that an action not be adopted as proposed where it will have significant adverse environmental impacts and alternatives or feasible mitigation measures to the proposed action are available which would substantially reduce or avoid such impacts;

WHEREAS, the Board has considered the impact of the proposed regulations on the economy of the state;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of Chapter 3.5 (commencing with Section 11340), Part 1, Division 3, Title 2 of the Government Code;

WHEREAS, the Board finds that:

The state and national health-based ambient air quality standard for CO is exceeded in various areas of the state from September through March, with most exceedances occurring in November, December and January;

The addition of oxygenates to gasoline results in significant reductions in CO emissions from motor vehicles;

The wintertime oxygenate regulation approved herein is necessary to help attain the state and federal ambient CO standards and to fulfill the requirements of section 211(m) of the federal Clean Air Act;

The wintertime oxygenate regulation approved herein will reduce emissions of CO in California CO nonattainment areas in the high CO periods by approximately 1000 to 1200 tons per day in 1992-1995;

The wintertime oxygenate regulation approved herein is technologically feasible within the applicable timeframe;

The wintertime oxygenate regulation approved herein is expected to result in an increase in the cost of gasoline of about 3 cents per gallon in the winter months through February 1996, and is expected to have a cost effectiveness of about \$1000 per ton of CO emissions reductions; this cost effectiveness value is within the range of other measures that are expected to be implemented during the same time period in order to attain and maintain the federal and state ambient air quality standard for CO;

The modifications described in Attachment B are necessary and appropriate to clarify the requirements, to reflect the air pollution control needs of California, and to enhance the consistency of the regulations with the requirements of the federal Clean Air Act;

Based on available data, concentrations of oxygenates in gasoline causing an oxygen content greater than 2.2 percent will increase NOx emissions from motor vehicles, and the NOx emissions increase becomes greater as the oxygen content is further raised;

NOx is a precursor to the formation of ozone and PM10 and results in ambient NO2 concentrations; the state and national health-based ambient air quality standards for ozone are exceeded virtually year-round in the South Coast Air Basin and in several other air basins in the spring, summer and fall; the state and federal PM10 standards are regularly and significantly exceeded in many areas of California with the state standard being exceeded in every month of the year in 13 of the state's 14 air basins; and the state NO2 standard has been exceeded in the South Coast Air Basin from September to February and in the San Diego Air Basin in January;

The oxygenated gasoline regulation approved herein strikes an appropriate balance between the need to achieve substantial wintertime CO emission reductions and the need to avoid increases of NOx which would cause increases in concentrations of ozone and PM10;

It is not appropriate to have a near-term wintertime oxygenate program in the Los Angeles-Anaheim-Riverside Combined Metropolitan Statistical Area ("CMSA") in September because the area is not prone to high CO ambient concentrations in that month and the problem of ambient ozone concentrations vastly outweighs any problems relating to CO concentrations;

Requiring a gasoline oxygen content in excess of a range of 1.8 per cent to 2.2 per cent by weight in the Los Angeles-Anaheim-Riverside and San Francisco-Oakland-San Jose CMSAs and in the Fresno, Modesto, Stockton, Sacramento, Chico and San Diego Metropolitan Statistical Areas ("MSAs") from November through January or February would prevent or interfere with the state and federal ambient air quality standards for ozone and/or PM10, and the state and federal NO2 standards in the Los Angeles-Anaheim-Riverside CMSA, because of the likely NOx emission increases;

The maximum oxygen content limits in the regulations approved herein are designed to specify acceptable levels of emissions for NOx from all reformulated gasolines;

In order to assure the availability of adequate supplies of oxygenates during the wintertime oxygenate program and to avoid the effective preclusion of the use of ethanol as a gasoline additive for only one month of the year, it is necessary to revise the RVP regulation to provide a one psi allowance to blends of gasoline containing at least 4.9 percent ethanol by volume, in October only;

WHEREAS, the Board further finds that:

The regulation approved herein will result in significant reductions in emissions from motor vehicles of CO;

The modifications approved herein providing a one psi allowance under the RVP regulation for blends of gasoline containing at least 4.9 percent ethanol in October of 1993, 1994 and 1995 may result in some increase in the emissions of volatile organic compounds during those three months in if the amount of gasoline containing ethanol increases above current levels in those months;

The regulation approved herein is expected to result in increased shipments of MTBE and ethanol, with concomitant impacts on waterborne and rail traffic; and

The need to provide the substantial overall public health benefit from the CO emissions reductions noted herein, and the need to avoid the effective preclusion of the use of ethanol as a gasoline additive for only one month of the year, outweighs the potential adverse environmental impacts from the regulation noted above; there are no feasible mitigation measures or alternatives available to the Board which would further substantially reduce the potential adverse impacts of the regulation approved herein in light of the needs identified above.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the adoption of Title 13, California Code of Regulations, section 2258, as set forth in Attachment A, with the modifications (including the amendment of Title 13, California Code of Regulations, section 2251.5) described in Attachment B hereto, and with a further modification to apply the provisions identified in item 3 of Attachment B in November for those air basins in which the wintertime oxygenates program begins in November.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to incorporate into the approved regulation the modifications approved herein and such other conforming modifications as may be appropriate, and either to adopt the modified regulations, amendments, and new documents after making them available to the public for a supplemental written comment period of 15 days, with such additional modifications as may be appropriate in light of supplemental comments received, or to present the regulations, amendments and documents to the Board for further consideration if he determines that this is warranted in light of supplemental written comments received.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to apply to the U.S. EPA for a waiver under federal Clean Air Act section 211(m)(3)(A) to the extent necessary to permit the oxygenate regulations approved herein to satisfy the requirements of that Act.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer, as part of the rulemaking hearing to be scheduled in the spring of 1992 for the Board to consider adoption of a predictive model that for use in certifying a set of alternative gasoline specifications that could be met to satisfy compliance with the Phase 2 reformulated gasoline requirements, to also propose adoption of a predictive model that would enable the use of gasoline with higher oxygen contents than permitted under section 2258 as approved herein if the gasoline does not result in any increase in NOx emissions.

BE IT FURTHER RESOLVED that, following approval by the Office of Administrative Law of the regulation approved herein, the Executive Officer

is directed, as appropriate, to adopt the regulation as a part of the California State Implementation Plan and to submit it to the U.S. Environmental Protection Agency as a revision to the California State Implementation Plan.

I hereby certify that the above is a true and correct copy of Resolution 91-57, as adopted by the Air Resources Board.

Pat Hutchens  
Pat Hutchens, Board Secretary

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RESOURCES AGENCY OF CALIFORNIA

**Resolution 91-57**

December 12, 1991

Identification of Attachments to the Resolution

**Attachment A:** Proposed new Title 13, California Code of Regulations, sections 2258, as set forth in Appendix A of Volume 2 of the Staff Report, "Proposed Regulations for California Wintertime Oxygenates Program."

**Attachment B:** Staff's Suggested Changes to the Proposed Wintertime Oxygenate Regulation (distributed at the hearing on December 12, 1991).

PUBLIC HEARING ON PROPOSED REGULATIONS ESTABLISHING  
A WINTERTIME OXYGENATED GASOLINE PROGRAM

DECEMBER 12, 1991

Staff's Suggested Changes to the Original Regulatory Proposal1. Starting date.

In light of recent guidance from the U.S. Environmental Protection Agency ("EPA"), the wintertime oxygenates requirements would apply starting November 1, 1992.

2. Standards for September and October.

(a) Change the regulatory control period for the South Coast Air Basin and Ventura County so that it starts October 1 rather than September 1. This change is premised on a conclusion that these areas are not prone to high ambient concentrations of CO in September; we hope that that EPA will determine in its final rulemaking on control periods that the Los Angeles-Anaheim-Riverside CMSA is not prone to high ambient concentrations of carbon monoxide in September. As modified, the regulation would impose no requirements in September.

(b) Eliminate the special standard for October, so that the 1.8 percent - 2.2 percent by weight oxygen content standard applicable in November through February would also apply in October (starting October 1993).

(c) In order to assure the availability of adequate supplies of oxygenates during the wintertime oxygenate program, revise the RVP regulation to provide a one psi allowance to blends of gasoline containing at least 4.9 percent ethanol by volume, in October only. This volume percentage is approximately equivalent to a 1.8 percent by weight oxygen content in gasoline oxygenated with ethanol.

Section Affected: Section 2258(a)(1) and (a)(2); Section 2251.5(a)(3).

3. Compliance at service stations during first 15 days of control period.

Add a new subsection providing that the minimum and maximum oxygen content limits do not apply to a transaction occurring in an air basin during the first 15 days of the October regulatory control period where the transaction involves the transfer of gasoline from a stationary storage tank to a motor vehicle fuel tank and the person selling, supplying, or offering the gasoline demonstrates as an affirmative defense that he or she has made, prior to the transaction, specific arrangements with a gasoline distributor

for the delivery of an oxygenated or nonoxygenated gasoline blend containing oxygenates in quantities that will result in gasoline in the stationary storage tanks at the facility having an oxygen content of from 1.8 percent to 2.2 percent by weight by October 16. In addition, provide that a distributor of gasoline to service stations or bulk purchaser-consumers is not subject to the minimum oxygenate content limit during the 15 day period if the distributor demonstrates that the gasoline is being distributed pursuant to a prior arrangement to deliver nonoxygenated gasoline to bring the facility into compliance with the 1.8 percent - 2.2 percent oxygen content limits by October 16. These provisions would also apply for November 1992.

Section Affected: New section 2258(a)(5).

#### 4. Variances.

EPA's original July 9, 1991 Notice of Proposed Rulemaking on Guidelines for an Oxygenated Gasoline Credit Program made no reference to relief from liability in extraordinary circumstances. As a result of the Negotiated Rulemaking process, in its September 6, 1991 draft modifications to the notice of proposed rulemaking EPA suggests that states should consider a provision for relief from liability in very limited circumstances. (pp. 65-66). In its September 23, 1991 draft supplemental proposal on reformulated gasoline enforcement regulations, EPA has provided draft regulatory language which would implement this concept. (pp. 64-65 of Draft; proposed 40 CFR sec. 80.73). EPA has indicated that such an approach represents the maximum extent to which a relief from liability provision could be approved in a wintertime oxygenated gasoline SIP revision. Accordingly, we recommend deletion of the variance language in the original proposal and substitution of the following language that is closely patterned after EPA's proposed regulation in the September 23 reformulated gasoline draft. We recommend that the Executive Officer be authorized to expand the text as appropriate prior to the 15-day availability period to further clarify the applicable procedures.

#### **Section 2258(d) Inability to produce conforming gasoline in extraordinary circumstances.**

In appropriate extreme and unusual circumstances (e.g., natural disaster or Act of God) which are clearly outside the control of the refiner, importer, or oxygenate blender and which could not have been avoided by the exercise of prudence, diligence, and due care, the executive officer may permit a refiner, importer, or oxygenate blender, for a brief period, to distribute gasoline which does not meet the requirements in section 2258(a) if:

(a) It is in the public interest to do so (e.g., distribution of the nonconforming gasoline is necessary to meet projected shortfalls which cannot otherwise be compensated for);

(b) The refiner, importer, or oxygenate blender exercised prudent planning and was not able to avoid the violation and has taken all reasonable steps to minimize the extent of the nonconformity;

(c) The refiner, importer, or oxygenate blender can show how the requirements for oxygenated gasoline will be expeditiously achieved;

(d) The refiner, importer, or oxygenate blender agrees to make up air quality detriment associated with the nonconforming gasoline, where practical; and

(e) The refiner, importer, or oxygenate blender pays to the Air Pollution Control Fund an amount equal to the economic benefit of the nonconformity minus the amount expended, pursuant to paragraph (d) of this section, in making up the air quality detriment.

Section Affected: Section 2258(d).

#### 5. Sampling procedures.

Add references to sampling procedures, which will be identical to those included in the staff's November 21, 1991 proposed modifications for the Phase 2 reformulated gasoline regulations. The referenced sampling methodology will be a revision of section 2296 in which various provisions will be clarified and simplified, without substantive changes. A cooling bath will not be required where the sample is taken to determine compliance with the oxygen content requirements.

Section Affected: Section 2258(c)

#### 6. Test methods.

Change the reference to the test method from ASTM D 4815-88 to ASTM D 4815-89. Clarify that the referenced ASTM D 4815-89 provides volume percent measurements of individual oxygenates but conversion of results to weight percent oxygen content is required. Such conversion can be accomplished in four steps by (1) calculating the specific gravity of the oxygenates/gasoline blend from the specific gravities of the oxygenates (see table below), gasoline and their respective volume fractions; (2) calculating weight percent oxygenate by multiplying the volume percent oxygenate by the ratio of the specific gravities of the oxygenate to the blend; (3) multiplying the weight percent of each oxygenate in the gasoline sampled by the weight fraction oxygen set forth in the table below; and (4) summing the weight percent oxygen contribution of each oxygenate to obtain the total oxygen content. In addition, provide that all volume measurements shall be adjusted to 60 degrees Fahrenheit.

These clarifications are based on the preamble and appendix text in EPA's proposed Guidelines for Oxygenated Gasoline Credit Programs, 56 F.R. 31151, 31165, 31166 (July 9, 1991), as modified by EPA's draft supplemental notice dated November 15, 1991. In addition, direct the Executive Officer to make additional modifications deemed appropriate in light of EPA's final Guidelines when issued; such modifications could include identification of an assumed density of the gasoline and of appropriate equations to be used for the conversion of oxygenate content to oxygen content.

Table

<u>Oxygenate</u>	<u>Oxygen Weight Fraction</u>	<u>Specific Gravity at 60 Degrees F</u>
Methanol	0.4993	0.796
Ethanol	0.3473	0.794
Propanols	0.2662	0.789
Butanols	0.2158	0.810
Pentanols	0.1815	0.817
Methyl Tertiary-Butyl Ether (MTBE)	0.1815	0.744
Hexanols	0.1566	0.823
Tertiary Amyl Methyl Ether (TAME)	0.1566	0.770
Ethyl Tertiary-Butyl Ether	0.1569	0.755

Section Affected: Section 2258(c).

7. Effect of supply waiver under Federal Clean Air Act.

Add language providing that if the EPA Administrator issues, pursuant to section 211(m)(3)(c) of the federal Clean Air Act, a waiver of the requirements of section 211(m)(2) applicable to a geographic area or areas of California, the requirements of section 2258(a) shall not apply in any air basin containing an area covered by the waiver, during the period of the waiver. If a waiver is issued for an area in southern California (South Central Coast, South Coast, Southeast Desert and San Diego Air Basins), section 2258(a) would also not apply, during the period of the waiver, in any air basin in Southern California not containing any area required under section 211(m) of the federal Clean Air Act to have a wintertime oxygenates program. A similar provision would be included applicable to northern California (all air basins not identified above as being in southern California).

Section Affected: new Section 2258(e).

8. 1996 sunset.

Since the Phase 2 reformulated gasoline regulations will not require compliance before March 1996, revise the December 31, 1995 sunset clause to provide that the section does not apply to gasoline sold or supplied after February 29, 1996.

Section Affected: Section 2258(e) (relettered as 2258(f)).

9. Predictive Model.

In addition to the above regulatory modifications, include in the Resolution a paragraph stating that, as part of the rulemaking hearing to be scheduled for the spring of 1992 to consider adoption of a predictive model for use in certifying a set of alternative gasoline specifications that could be used to satisfy compliance with the Phase 2 reformulated gasoline requirements, the Executive Officer is directed to also propose adoption of a predictive model that would enable the use of gasoline with higher oxygen contents than permitted under section 2258 if the gasoline does not result in any increase in NOx emissions.