

State of California  
AIR RESOURCES BOARD

Resolution 00-22

June 22, 2000

Agenda Item No.: 00-6-1

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

WHEREAS, section 41712 of the Health and Safety Code directs the Board to adopt regulations to achieve the maximum feasible reduction in volatile organic compounds (VOCs) emitted from consumer products, if the Board determines that adequate data exist for it to adopt the regulations, and if the regulations are technologically and commercially feasible and necessary;

WHEREAS, section 41712(i) of the Health and Safety Code requires the Board, on or before January 1, 1995, to adopt a regulation that achieves the maximum feasible reduction in VOCs emitted from the use of aerosol paints (aerosol coatings);

WHEREAS, to fulfill the requirements of section 41712 of the Health and Safety Code, the Board has adopted the Regulation for Reducing VOC Emissions from Aerosol Coatings (title 17, CCR, sections 94520-94528; the "aerosol coatings regulation"), which establishes VOC limits for 35 categories of aerosol coatings;

WHEREAS, the aerosol coatings regulation specifies two tiers of VOC limits; the first tier VOC limits became effective on January 8, 1996, and the more stringent second tier VOC limits are scheduled to become effective on January 1, 2002;

WHEREAS, the Board, in recognition that the January 1, 2002, VOC limits would be technically challenging, directed staff to return with a voluntary alternative reactivity-based compliance option for aerosol coatings that would achieve an equivalent air quality benefit;

WHEREAS, during development of the voluntary reactivity regulation for aerosol coatings, Board staff and representatives of the aerosol coating industry came to the conclusion that it is preferable to replace the existing VOC content limits with mandatory reactivity-based VOC limits;

WHEREAS, photochemical reactivity, or reactivity, describes a VOC's potential to form ozone once emitted;

WHEREAS, each VOC has a different potential to form ozone once emitted, and by recognizing the differences in the potential of each VOC to form ozone, a control approach can be established which, rather than limiting the total mass of VOCs, limits the amount of ozone produced by the VOCs;

WHEREAS, the Maximum Incremental Reactivity (MIR) scale is currently used in the California Clean Fuels and Low Emission Vehicle Regulations, and can also be used to quantify the ozone formation of VOC emissions from aerosol coatings;

WHEREAS, staff has proposed amendments to the aerosol coatings regulation which would replace the January 1, 2002, mass-based VOC limits with new reactivity-based limits;

WHEREAS, the proposed amendments use the MIR scale to calculate reactivity-based limits that will achieve an air quality benefit equivalent to the existing mass-based VOC limits;

WHEREAS, staff has also proposed tables of MIR values, and has proposed amendments to ARB Test Method 310 so that it can be used to determine compliance with the reactivity-based limits;

WHEREAS, in order to provide sufficient time for manufacturers to comply with the proposed reactivity-based limits, staff has also proposed to extend the January 1, 2002, effective date to June 1, 2002, for the general aerosol coating categories, and to January 1, 2003, for the specialty aerosol coating categories;

WHEREAS, staff has also proposed to prohibit the use of three toxic air contaminants: methylene chloride, trichloroethylene (TCE), and perchloroethylene (Perc) in aerosol coatings formulated to comply with the reactivity-based limits;

WHEREAS, these three compounds were identified by the Board as toxic air contaminants pursuant to Article 3 (commencing with section 39660), Chapter 3.5, Part 2, Division 26 of the Health and Safety Code: methylene chloride was identified on July 13, 1989; TCE was identified on October 12, 1990; and Perc was identified on October 10, 1991;

WHEREAS, the Board determined there is not sufficient available scientific evidence to support identification of threshold exposure levels for methylene chloride, TCE, and Perc below which no significant adverse health effects are anticipated (see title 17, CCR, section 93000);

WHEREAS, sections 39658 and 39666 of the Health and Safety Code authorize the Board to establish airborne toxic control measures (ATCMs) for substances identified as toxic air contaminants in accordance with specified criteria;

WHEREAS, for toxic air contaminants for which the Board has not specified a threshold exposure level, section 39666 of the Health and Safety Code requires ATCMs to be designed to reduce emissions to the lowest level achievable through the application of best available control technology (BACT) or a more effective control method, considering factors specified in section 39665, unless the Board determines, based on assessment of risk, that an alternative level of emissions reduction is adequate or necessary to prevent an endangerment of public health;

WHEREAS, by specifying a complete prohibition on the use of methylene chloride, TCE, and Perc, the proposed amendments would reduce emissions of these compounds to the lowest levels achievable in aerosol coatings;

WHEREAS, in accordance with section 57004 of the Health and Safety Code, an external scientific peer review of the scientific basis for the proposed amendments has been conducted and approved by the Reactivity Scientific Advisory Committee;

WHEREAS, Board staff has consulted with the U.S. EPA regarding consumer product regulations promulgated by other state and local governments as provided in section 183(e) of the federal Clean Air Act;

WHEREAS, the California Environmental Quality Act (CEQA) and Board regulations require that no project that may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

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:

VOCs have differing abilities to induce formation of ozone in the air once emitted;

By understanding the difference in the reactivities of different VOCs, an efficient control strategy can be developed that, rather than limiting the total weight of VOCs, limits the ozone formed from aerosol coating VOC emissions;

The MIR scale is an appropriate index for quantifying ozone formation of VOCs in California and can be used as a basis for ozone control strategies;

The proposed amendments will replace the January 1, 2002, mass-based VOC limits with equivalent reactivity-based VOC limits;

The reactivity-based VOC limits will achieve an ozone reduction of about 9.6 tons per day, which is equivalent to the ozone reductions expected from reducing the mass of aerosol coating VOCs by 3.1 tons per day;

The amendments to the aerosol coatings regulation will provide flexibility to aerosol coating formulators by providing more reformulation options at less cost;

A reactivity-based regulation can be established for aerosol coatings because the MIR values for over 80 percent (on a weight basis) of the VOCs used in aerosol coatings are well-characterized, and an additional 17 percent are fairly well-characterized;

Even though the VOCs used in aerosol coatings are fairly well-characterized, to ensure that air quality is not compromised it is appropriate to apply uncertainty factor multipliers to the MIR values, as described in the Initial Statement of Reasons (ISOR), before calculating limits;

It is appropriate for hydrocarbon solvents of similar composition and reactivity to be grouped together in bins and assigned MIR values, as described in the ISOR;

It is appropriate to account for the ozone formed from emissions of negligible and low reactive VOCs, and it is therefore appropriate that no exemptions be allowed for these VOCs;

It is appropriate to add a separate category and limit for polyolefin adhesion promoters because their solvent requirements are different than other automotive bumper and trim products, and establishing a separate category will allow these products to continue to be sold in California and will not result in any adverse environmental impacts;

The amendments to ARB Test Method 310 are necessary to implement and enforce the reactivity limits;

The amendments to ARB Test Method 310 will allow the method to be used with formulation data to verify and provide discreet results for individual ingredients in aerosol coatings;

Adequate data exist to support the adoption of the amendments, and to establish that the amendments are necessary, and are technologically and commercially feasible;

The economic impacts of the proposed amendments have been analyzed as required by California law, and the conclusions and supporting documentation for this analysis are set forth in the ISOR;

The amendments to the regulation are authorized by California law, and satisfy the requirements of section 41712 of the Health and Safety Code;

The amendments are technologically and commercially feasible for each of the regulated categories, and will not result in the elimination of a product form; and

The reporting requirements of the amendments which apply to businesses are necessary for the health, safety, and welfare of the people of the State.

WHEREAS, pursuant to the requirements of the California Environmental Quality Act and the Board's regulations, the Board further finds that:

After full implementation on January 1, 2003, the amendments to the aerosol coatings regulation would not have either a positive or a negative environmental impact; this is because the amendments are designed to provide an air quality benefit of 9.6 tons per day of ozone reductions, which is equivalent to the benefit that would occur from implementation of the mass-based VOC limits;

A temporary adverse environmental impact will result from the proposed amendments, in that between January 1, 2002, and January 1, 2003, less ozone reductions will be achieved from the amendments than would have been achieved from implementing the currently specified January 1, 2002, VOC limits;

This temporary adverse impact will occur because the amendments delay the currently specified January 1, 2002, effective date until June 1, 2002, for the general aerosol coating categories, and until January 1, 2003, for the specialty aerosol coating categories;

The result of the delay in the effective dates is that ozone reductions would not be achieved until June 1, 2002 (when the new reactivity-based limits for the general coating categories become effective), after which 7.9 tons per day of ozone reductions would be achieved from the new limits;

The full 9.6 tons per day of ozone reductions would be achieved after January 1, 2003, when the new limits for the specialty coating categories become effective;

Delaying the January 1, 2002, compliance date until June 1, 2002, for the general coating categories, and until January 1, 2003, for the specialty coating categories, is appropriate because this delay will allow additional time for manufacturers to develop commercially viable products that meet the reactivity-based limits, and will mitigate the cost impacts to many manufacturers that would result from implementing the new reactivity-based limits within a relatively short period of time;

The considerations identified above override any adverse environmental impacts that will occur as a result of delaying the effective dates; and

There are no feasible alternatives or mitigation measures that would reduce the adverse environmental impacts identified above, while at the same time providing the benefits described above.

WHEREAS, with regard to the proposed prohibition on the use of methylene chloride, TCE, and Perc in aerosol coatings, and in consideration of the staff report and the written comments and testimony it has received, the Board further finds that:

It is appropriate to prohibit the use of methylene chloride, TCE, and perchloroethylene (Perc) in aerosol coatings in order to reduce the risk of toxic exposures from these compounds;

In accordance with Health and Safety Code section 39666(c), the amendments have been designed, in consideration of the factors specified in Health and Safety Code section 39665(b), to reduce emissions of methylene chloride, TCE, and Perc from aerosol coatings to the lowest levels achievable through application of BACT;

Prohibiting the use of methylene chloride, TCE, and perchloroethylene (Perc) in aerosol coatings will achieve both near-source and overall statewide risk reduction benefits;

Prohibiting the use of methylene chloride in aerosol coatings, as compared to simply preventing new or increased uses of this compound, is appropriate because a prohibition will “level the playing field” for all manufacturers, thereby avoiding any economic advantage that may be provided to manufacturers who currently use methylene chloride and would be allowed to continue using it indefinitely under a “no new or increased use” provision;

A complete prohibition on methylene chloride use will also completely mitigate any potential adverse environmental impacts of the amendments, because methylene chloride is counted as a VOC in the existing aerosol coatings regulation, and an overall reduction in VOCs (including a likely

reduction in methylene chloride use) would occur if manufacturers reformulate their products to meet the existing January 1, 2002, VOC limits; but such a reduction in methylene chloride use is less likely to occur under a reactivity-based approach, because methylene chloride is both relatively low in reactivity and inexpensive, and these factors would provide an incentive for its continued use to meet reactivity-based standards;

Prohibiting the use of TCE is appropriate because, although TCE is not currently used in aerosol coatings sold in California, it is possible that manufacturers could begin to use TCE because it is relatively low in reactivity, thereby providing an incentive for TCE use to meet reactivity-based standards;

The existing aerosol coatings regulation contains a provision that prohibits new or increased uses of Perc in aerosol coatings, as compared to a baseline of coatings that contained Perc in 1992. Perc is not used in aerosol coatings that are currently being manufactured for California sale, and it is appropriate to modify the existing “no new or increased use” provision by completely prohibiting all use of Perc, because a complete prohibition will simplify and clarify the regulatory language, and “level the playing field” for all manufacturers;

It is also appropriate to prohibit the use of methylene chloride, TCE, and Perc in aerosol coatings in order to be consistent with recent Board actions which prohibited the use of these compounds in aerosol adhesives, brake cleaners, carburetor or fuel-injection air intake cleaners (carburetor cleaners), engine degreasers, and general purpose degreasers; and

Suitable alternative formulations of aerosol coatings are available that do not use methylene chloride, TCE, or Perc.

WHEREAS, the Board further finds that no alternative considered would be more effective at carrying out the purposes for which the amendments are proposed, or be as effective and less burdensome to affected private persons and businesses than the amendments.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the proposed amendments to sections 94521-94524, and 94526, title 17, CCR; the proposed adoption of new subchapter 8.6, sections 94700 and 94701, title 17, CCR; and the proposed amendments to ARB Test Method 310; as set forth in Attachments A and B hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt the amendments set forth in Attachment A, with the modifications set forth in Attachment B and such other conforming modifications as may be appropriate, after making the modified regulatory language and any additional supporting documents and information available to the public for a period of 15 days, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make modifications as appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted after review of the comments.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to review the Tables of Maximum Incremental Reactivity (MIR) Values 18 months after the effective date of the amendments, and every 18 months thereafter, to determine if modifications to the MIR values are warranted.

BE IT FURTHER RESOLVED that, pursuant to sections 39515, 39516, 39600, and 39601 of the Health and Safety Code, if modifications to the Tables of MIR Values are warranted, the Board expressly delegates to the Executive Officer the authority to adopt regulatory amendments to the Tables of MIR Values set forth in sections 94700 and 94701, title 17, CCR, and to conduct public hearings and take other appropriate actions to make such amendments.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to review the reactivity-based limits before January 1, 2007, to determine if modifications are necessary to reflect any changes to the MIR values, and to return to the Board with any recommended modifications to the reactivity-based limits.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to take the following actions: (1) monitor the progress of manufacturers in meeting the reactivity-based VOC limits, (2) propose any future regulatory modifications that may be appropriate, and (3) continue to evaluate emerging technologies for aerosol coatings to determine if additional ozone reductions will be feasible in the future.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to discuss with the United States Environmental Protection Agency (U.S. EPA), the Natural Resources Defense Council (NRDC), and the Clean Air Coalition (CCA)



the issues raised in their letters regarding the science and enforceability; and report to the Board within 90 days on the results of those discussions.

BE IT FURTHER RESOLVED that following approval of the amendments by the Office of Administrative Law, the Board directs the Executive Officer to submit the amendments to the U. S. EPA for inclusion in the SIP.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to ensure that the SIP revision is consistent with section 41712(i)(3) of the Health and Safety Code, to include in the SIP revision any additional documentation identified as necessary for approval under the federal Clean Air Act and U.S. EPA regulations, and to work with the U.S. EPA to ensure that the amendments to the aerosol coatings regulation are approved as a SIP revision.

I hereby certify that the above is a true and correct copy of Resolution 00-22, as adopted by the Air Resources Board

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Pat Hutchens, Clerk of the Board

Resolution 00-22

June 22, 2000

Identification of Attachments to the Board Resolution

**Attachment A:** Proposed amendments to the Regulation for Reducing Volatile Organic Compound Emissions from Aerosol Coating Products, sections 94521-94524, and 94526, title 17, California Code of Regulations (CCR); proposed Tables of Maximum Incremental Reactivity (MIR) Values, subchapter 8.6, sections 94700 and 94701, title 17, CCR; and proposed amendments to ARB Test Method 310; as set forth in Appendix A to the Initial Statement of Reasons, released May 5, 2000.

**Attachment B:** Staff's Suggested Changes to the Original Proposal (distributed at the Board hearing on June 22, 2000).

