

ATTACHMENT G

STAFF REPORT

FOR PROPOSED AMENDED RULE 1113 – ARCHITECTURAL COATINGS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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**FINAL STAFF REPORT FOR
PROPOSED AMENDED RULE 1113 – ARCHITECTURAL COATINGS**

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TABLE OF CONTENTS

	Page
ACRONYMS USED IN THIS REPORT -----	1
EXECUTIVE SUMMARY -----	2
BACKGROUND -----	3
TECHNOLOGY ASSESSMENT -----	5
PROPOSED AMENDMENTS -----	18
NPCA PROPOSAL AND EMISSION IMPACTS -----	20
EMISSION INVENTORY AND EMISSION REDUCTIONS -----	22
COST AND COST-EFFECTIVENESS -----	25
INCREMENTAL COST-EFFECTIVENESS -----	27
SOCIOECONOMIC ASSESSMENT -----	28
COMPARATIVE ANALYSIS OF ARCHITECTURAL RULES -----	28
DRAFT FINDINGS -----	30
COMMENTS AND RESPONSES -----	31
CONCLUSION AND RECOMMENDATION -----	46
REFERENCES -----	46
APPENDIX A – LIST OF AVAILABLE PRODUCTS	
APPENDIX B – EMISSION CALCULATIONS	

ACRONYMS USED IN THIS REPORT

AQMD	South Coast Air Quality Management District
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
g/l	Grams per Liter
IM	Industrial Maintenance
MWD	Metropolitan Water District
NO _x	Oxides of Nitrogen
NPCA	National Paint and Coatings Association
OEHHA	Office of Environmental Health Hazard Assessment
PAR	Proposed Amended Rule
PCBTF	Parachlorobenzotrifluoride
SCAP	Southern California Alliance of Publicly Owned Treatment Works
SCM	Suggested Control Measure
TBAc	Tertiary-Butyl Acetate
tpd	Tons per day
tpy	Tons per year
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

Rule 1113 - Architectural Coatings was originally adopted by the AQMD on September 2, 1977, to regulate the VOC emissions from the application of architectural coatings, and has since undergone numerous amendments. Future VOC limits for many coating categories are to take effect on July 1 of 2006, 2007 and 2008. The AQMD's 2003 Air Quality Management Plan concluded that major reductions in criteria pollutant emissions and precursor emissions, such as oxides of nitrogen and ~~precursor pollutants, such as~~ VOCs, are necessary to attain the state and national ambient air quality standards for ozone, and coarse and fine particulate matter (PM₁₀ and PM_{2.5}).

The current rule contains a requirement for staff to conduct a technology assessment prior to implementation of the lower limits. As a result of the comprehensive technology assessment, summarized in the 2005 Annual Status Report on Rule 1113 – Architectural Coatings¹, staff has developed the PAR 1113 to implement the recommendations from the report. Staff has considered public comment on the annual report as well as concerns brought to staff's attention after numerous consultation meetings with individual architectural coating manufacturers and NPCA, in preparing the recommendation for amendments to Rule 1113.

The proposed amendments will allow the coating manufacturers to:

- use TBAC as an exempt solvent in IM coatings (including zinc-rich primers),
- have a new high gloss subcategory of the nonflat category with a VOC limit of 150 g/l,
- comply with an interim limit for quick-dry enamels of 150 g/l,
- postpone by one year the final limit of 50 g/l for both the high gloss nonflat and quick-dry enamels (quick-dry enamels are high gloss nonflat coatings that dry quicker), and
- postpone the final limit of 100 g/l one year for specialty primers and establish a new interim limit of 250 g/l.

In addition, the proposed amendments will:

- modify some definitions for clarity including clear floor coatings where there may be overlap issues with different coating categories with different VOC limits;
- lower the VOC limit for the following three coating categories: concrete-curing compounds (except for those used for roadways and bridges), dry-fog coatings, and traffic coatings. These categories, as well as the category bond breakers, were identified by NPCA as future and potential candidates for cost-effective reductions that could be used to offset VOC emissions forgone due to the delay in implementation of the nonflat high gloss, quick-dry enamel and specialty primer categories. Staff's subsequent technology assessment confirmed the feasibility of the proposed lower limits with exception of the bond breakers;
- eliminate the fire-retardant category requiring these coatings to be subject to the VOC content limit of the coating category for which they are manufactured (i.e., primer, sealer, flat, nonflat);
- allow fire-retardant coatings and metallic pigmented coatings to be averaged; and

¹ Presented to the Governing Board on January 6 and accepted February 3, 2006

- make some administrative changes to: allow a one year sell-through provision for small containers, labeling requirements, annual reports, test methods and technology assessments.

The proposed amendments will result in approximately 0.8 tpd of emission reductions postponed for one year and 0.7 tpd additional emission reductions to become effective in July 2007. The cost-effectiveness of the emission reductions are estimated at \$4,882 per ton.

During the final stages of staff's technology assessment and the rule development process, staff was engaged in intensive discussions with representatives of the architectural coating industry and the NPCA relative to the state of technology. During the process NPCA submitted several proposals to staff to amend Rule 1113 that sought to increase and delay the VOC limits for many coating categories in the rule, which would result in emission reductions forgone from 13 tpd to 4.7 tpd and delay over 2 tpd. NPCAs most recent proposal described in more detail in this report would result in emissions permanently forgone of at least 4.7 tpd of VOC and in addition delay 2.03 tpd. Staff is not supportive of this proposal in part because of the significant adverse emission impacts but also due to the feasibility of compliance with current limits based on staff's technology assessment verifying compliant performing products that are already marketed in all coating categories included in NPCAs proposal with the exception of those few categories included in staff's proposal where additional transition time is warranted.

The proposed amendments to Rule 1113 ~~will have been~~ reviewed pursuant to CEQA and a Draft Environmental Assessment has been prepared for consideration with the adoption of PAR 1113. A socioeconomic assessment ~~is being~~ has been prepared and ~~will be~~ was available 30 days prior to the AQMD Governing Board Public Hearing.

BACKGROUND

Architectural coatings including IM coatings is the largest VOC emission source category under the authority of the AQMD and one of the largest non-mobile sources of VOC emissions in the South Coast Air Basin. Rule 1113 is applicable to manufacturers, distributors, and end-users of architectural coatings. These coatings are used to enhance the appearance of and to protect homes, office buildings, factories and other structures, and their appurtenances on a variety of substrates. The coatings may be applied primarily by brush, roller, or spray gun; and those applying these coatings include homeowners, paint contractors, or maintenance personnel. Aerosol coatings are regulated by CARB and are therefore exempt from this rule.

The 2003 Air Quality Management Plan shows the VOC emissions from the use of architectural coatings in 1997 at 50.9 tpd on an Annual Average Inventory, and 60 tpd on the Summer Planning Inventory. The emissions for 2006 and 2010 are projected at 32.7 tpd and 24 tpd respectively on the Annual Average Inventory, and at 38.5 tpd and 28.3 tpd on the Summer Planning Inventory. The latest CARB architectural coating survey for year 2000 sales shows more than 50 tons per day of VOCs are attributed to the application of architectural coatings in the AQMD based on demographics.

VOC emissions cause the formation of ozone, PM_{2.5} (particulate matter less than 2.5 microns in size) and PM₁₀ (particulate matter less than 10 microns in size); three pollutants for which the

South Coast Air Basin exceeds the state and national ambient air quality standards. They are the most serious regional air quality problem within this air Basin and the most difficult to reduce to healthful levels.

VOCs react photochemically with NO_x to form ozone. Ozone is a strong oxidizer that irritates the human respiratory system and damages plant life and property. VOCs also react in the atmosphere to form PM_{2.5} and PM₁₀, pollutants that adversely affect human health and limit visibility. Because these small particulates penetrate into the deepest regions of the lung, they affect pulmonary function and have been linked to an increased number of deaths.

Rule 1113 was first adopted in 1977, and has since undergone numerous amendments. When Rule 1113 was amended on November 8, 1996 it included an averaging compliance option (ACO) for complying with coating VOC limits. Under an ACO, manufacturers are allowed to average their emissions over a compliance period not to exceed one year provided they demonstrate their actual cumulative emissions from the averaged coatings are less than or equal to the cumulative emissions that would have been allowed under the VOC limits specified in the Table of Standards. That version of Rule 1113 offered the averaging option for the flat coating category only. Further amendments to Rule 1113 on May 14, 1999 (vacated) and subsequent re-adoption on December 6, 2002, and on December 5, 2003, added numerous other coating categories to provide manufacturers additional compliance flexibility with the future VOC limits specified in the Table of Standards. The 2004 amendments addressed U.S. EPA concerns regarding the approvability of the ACO for the State Implementation Plan and the administration of the ACO Program.

Other alternative means of compliance are offered by the rule including the three-year sell-through provision and the small container exemption. Judging by the fact that many manufacturers utilize these provisions, staff has concluded that these flexibility provisions have allowed manufacturers additional time for product reformulation in a more cost-effective manner.

CARB developed a revised SCM for architectural coatings in June 2000 that was largely based on the interim limits and the averaging provision of Rule 1113, as amended in May 1999. The provisions in the SCM were developed by a consortium of California air pollution control districts, CARB, U.S. EPA Region IX, and paint manufacturers.

During the course of Rule 1113 implementation, the AQMD Governing Board approved a work plan that required staff to submit annual status reports summarizing issues and activities regarding the implementation of the rule. In addition, the rule required technology assessments for specific coating categories. In preparing the annual status reports, staff has received input from the Technical Advisory Committee made up of individuals from manufacturing companies including NPCA members, CARB, a consulting and engineering firm, a painting contractor and several members from academia. The 2005 Annual Status Report and Technology Assessment completed to date indicate that the paint manufacturers have made significant progress toward developing future compliant products in practically all categories, which perform equally to their higher-VOC counterparts.

In 2005 at Chairman Dr. William Burke's request, the AQMD Governing Board established an Ad hoc Committee for the purpose of providing an open forum to discuss key regulatory issues relative to the coatings industry and improving communication between the AQMD and the architectural coating industry to resolve current and future regulatory issues in a non-litigious manner. Staff met with NPCA and member manufacturers more than 10 times including some all day meetings as well as many teleconferences. During the discussions, NPCA initially acknowledged the air quality challenges of the region and expressed their desire to submit an alternate proposal that would be emissions neutral. However, none of the proposals submitted came even close to meeting emissions neutrality. The NPCA proposals expanded the number of coating categories, maintained current limits and deleted future effective limits for those categories and advanced the future limit for a portion of the flat coating category. Proposals ranged in emissions foregone from 4.7 tpd to 13 tpd, with a delay of 2.03 tpd. The most recent proposal sent to staff in the form of a Draft Consent Judgment would eliminate the July 1, 2006 effective dates for many categories, foregoing 4.74 tpd, and delaying July 1, 2006 effective dates for a few categories with emission of 2.03 tpd for one year. Staff is not supportive of this proposal in part due to the significant impacts associated with it, but also due to the feasibility of the upcoming VOC limits as demonstrated and verified by staff's technology assessment described below. This alternate NPCA proposal is discussed under the section *NPCA Proposal and Emission Impacts* of this report.

Staff also met and teleconferenced on a one-to-one basis with individual manufacturing companies more than 20 times.

TECHNOLOGY ASSESSMENT

Rule 1113 requires staff to conduct technology assessments for future VOC limits. The latest technology assessment was conducted during 2004 and 2005 for the following categories: clear wood finishes; IM coatings; nonflat coatings; primers, sealers and undercoaters; quick-dry enamels; quick-dry primers, sealers and undercoaters; rust preventative coatings; exterior stains; waterproofing sealers including concrete/masonry sealers. Many of these categories had undergone previous technology assessments for their interim limits. Beginning in 2004 staff also contracted with the University of Missouri-Rolla (UMR) to perform further technology assessments for these same categories. Technology assessments for floor coatings have been conducted successfully in the past (KTA Tator 2001 testing) and were not included in the UMR study.

In addition, the rule requires staff to consider any applicable future CARB architectural coating surveys. The most recent CARB Survey data available to staff is the 2001 Survey for 2000 architectural coating sales and emissions.

After the technology assessment a report to the AQMD Governing Board is required on the appropriateness of the future VOC limits. Staff has presented Annual Status Reports for architectural coatings to the AQMD Governing Board in 2000, 2001, 2002, 2003, 2004 and 2006. The latest Annual Status Report may be obtained from the AQMD at the following web address:

<http://www.aqmd.gov/rules/support.html#Rule%201113%20Annual%20Status%20Report>

Each Annual Status Report shows an increase in available compliant products for each coating category. More detailed discussions can be read in the full versions of these documents.

TBAc

U.S. EPA has delisted TBAc but indicated that the states and local districts must analyze any toxic impacts from the use of TBAc. In October 2005, CARB exempted TBAc in the Suggested Control Measure for Automotive Coatings. Staff does not require chronic toxicity testing for compounds exempted from the definition of VOC by U.S. EPA. However, staff does attempt to compile as much toxicity, global warming, stratospheric ozone depleting potential, etc., information as is currently available in the CEQA document that is typically prepared when exempting a compound from the definition of VOC. In performing the background research for TBAc, AQMD staff concluded that there is limited toxicity data available on TBAc and no chronic toxicity has been conducted on the chemical. For this reason the health risk analysis prepared for PAR 1113 in the Draft EA used tert-butyl alcohol (TBA), which has been shown to induce tumors in laboratory animals, as a surrogate for TBAc because of the metabolic conversion of TBAc to TBA. The health risk analysis was prepared for AQMD staff using standard health risk protocol, health risk values provided by OEHHA staff and parameters used by CARB to estimate risk from TBAc. Estimated risk factors for TBA provided by OEHHA staff members were used as a surrogate for determining potential cancer risk and non-cancer effects resulting from the limited exemption for TBAc. It should be noted that these surrogate risk factors developed by OEHHA staff have not been formally approved by the Scientific Review Panel yet, but have been peer reviewed. However, they reflect the best available information from OEHHA at this time, and these factors were used to conservatively estimate potential cancer risk and non-cancer effects from TBAc used to formulate IM coatings. A representative for the manufacturer of TBAc has stated that the company has commissioned a 90-day sub-chronic study that will be peer reviewed “by at least five toxicology experts selected by an independent third party.” This study may provide useful sub-chronic effects information that will be evaluated for use in further health risk analyses. Staff has recommended to the TBAc manufacturer representative that a long-term study be completed in addition to the sub-chronic study. By limiting the exemption for TBAc to IM coatings, the AQMD recognizes the potential cancer and acute risk exposure due to the use of TBAc but limits such risk below AQMDs significant risk threshold while providing the coating manufacturers with flexibility in formulating products compliant with the future IM coatings limits in PAR 1113. Staff will continue to evaluate additional information relative to TBAc’s toxicity as it becomes available and reevaluate its position as necessary.

Technology Discussions by Category

Clear Wood Finishes

The rule defines clear wood finishes as products applied to wood substrates to provide a transparent or translucent solid film. Several resin systems are available including acrylic, polyurethane, alkyd, and various copolymers or modifiers including but not limited to latex, polycarbonate, polyethylene, and urea. Many cure types are also available as one-component air-dried pre-catalyzed, and two-component post-catalyzed. Different cure types are necessary to assure proper durability for specific applications, whether they are for interior, exterior or for flooring use. Numerous manufacturers have developed clear wood finishes that perform as well

as the solvent-based varnishes and nitrocellulose topcoats in terms of appearance and durability. Appendix A of the most recent Annual Status Report shows more than 100 products that have a lower VOC content than the future limit. The 2001 CARB Architectural Coatings Survey (Survey) shows 20% of the products and 36% of the sales in compliance with 275 g/l. The UMR study supports the 275 g/l limit for this category. An analysis of product data sheets supplied by various manufacturers supports staff's conclusions that the future limit of 275 g/l VOC and much lower is currently achievable. Additionally, staff continues to visit sites where future compliant products in this category have been applied showing excellent performance, even when subjected to harsh conditions (high traffic) such as manufacturing areas. The availability of numerous compliant low VOC products in the clear wood finish categories, confirms staff's previous conclusion that the small container (one quart or less) exemption, which is due to expire on July 1, 2006, is no longer warranted.

Floor Coatings

The rule defines this category as opaque coatings that are formulated for or applied to flooring; including but not limited to decks, porches, gymnasiums, and bowling alleys, but do not include Industrial Maintenance Coatings. Clear wood floor coatings belong to the clear wood finish category, but clear floor coatings for other substrates such as concrete are not included in the definition of floors, and since they do not belong to a specific category the coatings would default to the 250 g/l limit. There are many products with overlapping functionalities such as clear wood finishes, stains or waterproofing sealers that may be applied to the same substrate that is positioned both horizontally and vertically such as walls, floors or ceilings. Whether a particular product falls under the floor definition or some other coating definition depends on how the product is labeled.

For clarification, staff is proposing to amend the definition of floors to include clear coatings formulated for or applied to concrete flooring" and add the words "represented in part for use on flooring" to the most restrictive provision of the rule. Therefore if the manufacturer labels a coating as a "clear floor coating for concrete" the coating will have to comply with the VOC limit for floor coatings. However, if the manufacturer states on the label or in the literature, for a coating such as a waterproofing sealer or waterproofing concrete/masonry sealer that the product may be applied to floors, then the coating may meet the VOC limit for that category.

For the last several years, staff has observed and monitored the application and durability of clear and opaque, two component epoxy and polyurethane floor coatings below 50 g/l used for residential, commercial and industrial applications. Some of these products are also offered for sale in local warehouse stores for the do-it-yourself market. In March of 2001, the AQMD awarded a contract to KTA-Tator, Inc. for the study of various coatings. The evaluation reviewed performance characteristics of 31 products in four architectural coating categories that included floor coatings. The best performing coating was a two-component floor coating with a VOC content well below the 50 g/l limit. AQMD staff concluded that the overall results substantiate current and future limits. The 2001 CARB Survey shows 19% of the products and 49% of the sales in compliance with the future VOC limit of 50 g/l and lists the following resins for use in formulating floor coatings: acrylic, acrylic copolymer, cellulosic, epoxy, polyvinyl acetate, vinyl acrylic copolymer, and others. Appendix A of the Annual Status Report lists 20 coatings that meet the future limit in the floor category of 50 g/l VOC. An analysis of technical

data sheets and material safety data sheets supplied by various manufacturers supports staff's conclusions that the future limit of 50 g/l VOC is currently achievable.

IM Coatings

The rule defines this category as coatings including primers, sealers, undercoaters, intermediate coatings and topcoats, formulated for or applied to substrates, including floors, which are exposed to at least one of five extreme environmental conditions. The IM coating category continues to be part of every study conducted by the AQMD and is considered to be the most challenging. Results of past studies indicate that coatings meeting the future limit of 100 g/l are currently available for the IM coating category. Staff continues to obtain additional information on IM coatings from technical data sheets and material safety data sheets analysis. Included in that analysis are over 280 IM Coatings (more than triple the number reported in the 2003 Annual Status Report to the AQMD Governing Board) that are well below the July 1, 2006 100 g/l VOC limit. The UMR technology assessment tested 3 IM coating systems and the results support reducing the IM category to 100 g/l.

Various public service agencies have completed testing of low-VOC products in recent years and have found compliant products with acceptable performance. For example, SCAP conducted its own independent evaluation of IM coatings. SCAP is a non-profit corporation organized to help ensure that regulations affecting Publicly Owned Treatment Works are reasonable and in the public's best interest. Their testing of IM coatings was conducted to identify low-VOC coating systems suitable for wastewater treatment and conveyance facilities. Participants in this study included the Los Angeles County Sanitation District, the Orange County Sanitation District, the Eastern Municipal Water District, Las Virgenes Municipal Water District and the City of Los Angeles.

SCAP evaluation of the performance of low-VOC atmospheric and immersion coating systems, completed in February 2003, indicated that compliant coating systems meeting the performance criteria for wastewater environments and the 2006 limits in Rule 1113, performed similarly to existing coating systems.

MWD initiated its own independent evaluation which is ongoing to test new products that meet their very stringent internal standards for performance and that also meet the future VOC limit of 100 g/l. As mentioned in previous annual reports, a committee was formed in September 1999 comprised of representatives from the Los Angeles Department of Water and Power, the Department of Water Resources, the California Department of Transportation, and the MWD of Southern California. The committee, referred to as the "Essential Public Service Agencies", was initially tasked with identifying and testing low-VOC products and continues with the program today, through MWD's leadership.

Typical IM coatings are expected to have a 7 year longevity, whereas under their more stringent criteria, MWD desires an IM coating to last at least 15 years. MWD's list of approved IM coatings that meet their stringent standards is utilized by numerous public agencies. The testing to date indicates that:

- Available low-VOC IM **immersion** coatings meeting the 2006 limits, conform to their stringent standards, and

- They continue to look for IM coating **atmospheric** products that also meet their stringent criteria.

To allow a higher VOC limit for these very limited applications would require the establishment of numerous subcategories of IM coatings, as the uses range from chemical immersion, exterior exposure heavy equipment coating, floors, etc., which is difficult to delineate and enforce. While there are several low-VOC atmospheric products that meet the performance standards of many end users, there are not too many products that meet MWDs most rigorous standards of 15 to 20 years. However, recently MWD has completed testing of some atmospheric IM coatings formulated with exempt solvents, including TBAC that meet their rigorous performance needs. TBAC has been recently delisted by U.S. EPA from their VOC definition and many coating manufacturers are seeking AQMD to follow suit. CARB has prepared an environmental impact assessment for TBAC but has not formally proposed or adopted any regulations that have changed the definition of VOC to exempt TBAC. However, in October 2005, CARB exempted TBAC for the Suggested Control Measure for Automotive Coatings. AQMD staff agrees that TBAC has low photochemical reactivity and understands that TBAC is a desirable solvent from the formulator's standpoint. Many IM coating manufacturers are seeking delisting of TBAC for use in IM coatings. At the present time there appears to be no other exempt solvent available to manufacture compliant IM atmospheric coatings with exceptionally long life performance. As with other projects evaluating the health impacts from air toxics, AQMD staff relied upon OEHHA/CARB to develop health risk values, associated parameters and procedures. Staff's analysis utilizing toxicity information available relative to TBAC indicates the potential health impacts from this solvent under limited use are low. Therefore, staff is recommending a limited exemption for use in certain IM coating and zinc-rich primer applications which can be reformulated with TBAC to meet the lower VOC content limit. Staff did not propose an exemption for TBAC use in high temperature IM coatings since their VOC limit remains at 420 g/l.

Anti-graffiti IM Coatings

Anti-graffiti coatings are a subset of the IM coatings and are generally divided into sacrificial or non-sacrificial coatings. Sacrificial coatings are usually water based modified wax emulsions while non-sacrificial coatings are usually based on acrylic and polyurethane resins. Sacrificial coatings are removed from the substrate along with the graffiti. Anti-graffiti coatings are primarily non-penetrating forming a film to protect the substrate to prevent penetration of spray paint, marking pens, chemical attacks, crayons, etc. Most of the anti-graffiti coatings require the substrate to be sealed, usually with penetrating sealers, prior to application to prevent moisture from being trapped inside. During meetings with manufacturers comments were made that anti-graffiti coatings at 100 g/l or less VOC can not be produced that are penetrating and breathable. Staff has identified both types of anti-graffiti coatings at 100 g/l or less that are breathable allowing water vapor transmission. The specific coatings are: Monochem Permashield Non-Sacrificial and Permashield Sacrificial coatings, Genesis Coatings Graffiti Melt sacrificial coating, Spectra-Tone Paint Corp.'s Grafix sacrificial coating, Wearlon Plastic Maritime Corp.'s Wearlon 711 non-sacrificial coating and Rainguard's Vandl-Guard non-sacrificial coatings and Rainguard's VandlTop sacrificial coating.

Nonflat Coatings

The rule defines this category as registering a gloss of 5 or greater on a 60-degree meter and a gloss of 15 or greater on an 85-degree meter. The rule does not delineate various gloss ranges into distinct categories such as high, medium or low gloss.

There have been comments received from some manufacturers that a high gloss category should be developed in Rule 1113, similar to the 2000 CARB SCM for Architectural Coatings. In the SCM, high gloss coatings are those that register a gloss of 70 or above on a 60-degree meter and are allowed a higher VOC limit of 250 g/l. Although Appendix A of the Annual Status Report lists several high gloss coatings that are currently available and are below the 50 g/l limit that will be in effect in July 2006, several coating manufacturers commented to staff that the expected performance for certain key characteristics such as dirt pickup, may not be acceptable to the consumer. This issue, which is most likely due to the softer resin technology used for 50 g/l products in the high gloss nonflat and the companion quick-dry enamel category, was brought to staff's attention within the past year. As a result, this technology assessment focused on more carefully evaluating these criteria. Subsequent discussions with other manufacturers, however, indicated that with the latest resin and additive technologies, they were able to overcome the dirt pick up issue. Discussions with raw material suppliers also reinforced the point of view that new resins that were recently made commercially available to the market will address these issues. Based on the state of technology, it appears that it is reasonable to expect that all manufacturers will be able to soon produce good performing products.

Despite this expressed concern with nonflat high gloss coatings, overall, the list of currently available super-compliant nonflats continues to grow as indicated by staff reviews and updates of information based on technical data sheets and material safety data sheets. Several manufacturers have publicly supported the 50 g/l limit for low gloss and medium gloss nonflat coatings. There are currently over 50 coatings below 10 g/l (super-compliant) and a total of over 80 coatings below 50 g/l listed in Appendix A of the most recent Annual Status Report. This is more than double the number of coatings listed in the report to the AQMD Governing Board in December of 2003, indicating an increasing number of available compliant products. Consumers in the do-it-yourself market purchase these compliant products for their personal use on a daily basis.

In spite of the increase in the availability of coatings in this category below 50 g/l, the rule still incorporates alternative compliance options, such as the averaging provision and an allowable three-year sell-through provision for coating manufacturers that allow manufacturers to continue marketing higher VOC products after the compliance date. However, since staff's research to date has found a limited number of low-VOC products meeting the definition of high gloss, and in light of recent UMR test results with respect to the surrogate dirt pick up tests, AQMD staff is supportive of creating a new category specifically for nonflat high gloss effective July 1, 2006 with a VOC of 150 g/l, reducing to 50 g/l VOC by July 1, 2007. This additional time would allow manufacturers to utilize the latest resin technologies into this formulation. In addition, this would also include giving the same time extension and VOC limit of 150 g/l for the companion category of quick-dry enamels (discussed below) which are also high gloss.

Quick-Dry Enamels (QDE)

A subcategory of nonflats, QDEs have gloss values greater than 70 on a 60° meter and should be capable of achieving set-to-touch in at least two hours, dry-hard in at least eight hours and be tack-free in at least four hours. AQMD staff recognizes that the same problems associated with dirt pickup for nonflat high gloss coatings exist with the QDEs, and is recommending the same interim limit and final compliance date.

Primers, Sealers, and Undercoaters (PSU) and Quick-Dry PSU

The rule defines primers, sealers and undercoaters separately as well as quick-dry PSUs. Primers are defined as coatings applied to a surface to provide a firm bond between the substrate and subsequent coats. A sealer is defined as coatings applied to either block materials from penetrating into or leaching out of a substrate, to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by material in the substrate. Undercoaters are coatings formulated for or applied to substrates to provide a smooth surface for subsequent coats. Quick-dry PSUs are required to dry-to-touch in one-half hour and can be recoated in two hours. An analysis of currently available PSUs clearly shows that the future VOC limit of 100 g/l by July 1, 2006 is attainable today. The 2001 CARB Survey shows that for PSUs 31% of the products and 33% of the sales comply with the 100 g/l limit. The Survey shows that even 2% of quick-dry PSU products and 2% of the sales meet the 100 g/l limit. More than 100 coatings have been identified, through technical data sheets, material safety data sheets and on site inspections that are well below the future 100 g/l VOC. The UMR study supports the 100 g/l limit as well. Those coatings are applicable to a wide variety of substrates and provide physical coating characteristics including stain blocking, sandability, adhesion to substrate and topcoat, which meet or exceed the performance standards typically expected of products from industry and consumers. Although not specifically called a quick dry product, most standard PSUs meet the definition of a quick dry coating and consequently are included in the staffs' analysis as a primer, sealer or undercoater. This is well supported by various technology assessments, including the NTS, KTA-Tator, and UMR studies. Some manufacturers have stated to staff that they will not have any problems meeting the 100 g/l limit for these categories.

Rust Preventative Coatings

The rule defines this category as being formulated for use in preventing the corrosion of metal surfaces in residential and commercial situations. CARB surveys continue to show an increase in the number of rust preventative coatings for sale at VOC levels that meet the future limit of 100 g/l. However, this new category in the 2001 CARB Survey showed a limited number of products, which is expected to grow significantly in the next CARB architectural survey. The 2003 CARB annual report shows an increase in sales of 582% over the sales reported in the 2001 CARB Survey for this category. Staff evaluation indicates that compliant coatings with low-VOC are currently available. These are single component, direct-to-metal (DTM) coatings that provide corrosion resistance for interior and exterior metal surfaces. The 2001 CARB Survey shows that 19% of the products are in compliance with the 100 g/l limit. Appendix A of the current Annual Status Report lists 28 DTM rust preventative coatings that meet the future VOC limit and are currently available from various manufacturers. The UMR study tested rust preventative coating systems, comprised of a primer and topcoat, which supports the 100 g/l limit. Additionally, numerous products labeled as non-flats, and not specifically listed as rust-

preventative coatings, have anti-corrosive characteristics that make them suitable for application and use for the prevention of rust on metal surfaces, as indicated in manufacturer product literature. An example of a zero-VOC rust preventative coating is a product made by Sierra Performance (Rust-Oleum) labeled Metalmax™ DTM Acrylic Urethane Enamel. During a random field visit to a Macy's Department Store construction site in Rancho Cugamonga, AQMD staff encountered the specification and application of a rust preventative coating manufactured by ICI Devco. The coating is called ICI Devflex 4020PF and contains 91 g/l VOC. An analysis of the technical assessment supports staff's conclusion that the future limit of 100 g/l VOC is currently achievable.

Specialty Primers

The rule defines this category as coatings intended to seal fire, smoke or water damage, or to condition excessively chalky surfaces. Many of the coatings that fall within other categories, such as PSUs, have characteristics similar to requirements for specialty primers, such as the need to condition excessively chalky surfaces. A review of the available specialty primer products are listed under PSUs and the associated characteristics in Appendix A of the current Annual Status Report indicates a vast amount of coatings available that meet those needs. One of the major manufacturers of coatings in this category met with staff several times and explained that the waterbased technology to develop a usable specialty primer at 100 g/l limit which can seal fire and smoke damage, as well as severe water-soluble stains was not currently possible but the technology is moving in the right direction and would soon be achievable. The manufacturer is currently working with exempt solvents and major alkyd resin suppliers to reduce the VOC in their alkyd primers as well as partnering with a major university to develop new coating formulations which will meet or be below the 100 g/l limit in the rule. After reviewing the available technology and several manufacturer recommendations, staff is proposing to establish an interim VOC limit of 250 g/l effective July 1, 2006 and delay the 100 g/l limit by one year for this category.

Stains (Exterior)

The rule defines this category as opaque or semi-transparent coatings which are formulated to change the color but not conceal the grain pattern or texture. The 2001 CARB Survey shows 10% of the products and 11% of the sales complying with the 100 g/l limit. The 2005 Annual Status Report, Appendix A lists 30 exterior stains that have a VOC content of 100 g/l or less. The UMR study conducted accelerated exposure testing in ultra violet (UV) and condensation devices simulating the coatings ability to resist deterioration of its physical properties caused by exposure to light, heat, and water (ASTM D4587). The aluminum panels were subjected to UV and condensation cycles alternating every four hours. Every 200 hours the panels are evaluated for gloss and color change over a total time of 1000 hours. Other tests performed were: scrub resistance, ASTM D2486; stain resistance, ASTM D4828 modified; adhesion, ASTM D3359; Taber Abrasion, ASTM D4060; and surface tension, ASTM D1331. The exterior stains that were tested were: Cabot, Decking Stain #7400 clear; Silverton, Rhinoguard Wood Defense Deck & Siding Honey Finish; e3 Coating, Envirolast XT Wood Stain & Seal; and Fuhr Zero VOC Exterior Deck Stain & Finish Clear #5900. The results support the 100 g/l limit for exterior stains even though manufacturers have additional time for developing and testing their products until July 1, 2007.

Waterproofing Sealers (WPS)
Waterproofing Concrete Masonry Sealers (WPCMS)

The rule defines these categories separately. Waterproofing sealers are coatings which are formulated for the primary purpose of preventing penetration of porous substrates by water. Waterproofing concrete/masonry sealers are clear or pigmented sealers that are formulated for sealing to provide resistance against water, alkalis, acids, ultraviolet light, and staining. Appendix A of the current Annual Status Report lists over 70 coatings that are less than 100 g/l VOC meeting the July 1, 2006 limits for the WPS and WPCMS categories. During meetings with manufacturers comments were made that some substrates, such as travertine and natural stone, do not have the chemistry to react with some types of waterproofing concrete/masonry sealers and those coatings for these substrates were impossible to produce at a VOC content of 100 g/l. Staff reviewed the technical data sheets for waterproofing concrete/masonry sealers with a VOC content of 100 g/l or less and found nine coatings recommended for use on natural stone, granite, marble, slate, travertine, limestone, and sandstone as well as concrete, exposed aggregate concrete, brick, stucco, block, and clay tile. The nine products are Rainguard Plugger Water Repellent and Sealer, Duro Shine Invisi-Guard Impregnating Sealant, National Chemical Laboratories Surface Barrier Fluoropolymer Impregnator, Endur-O-Seal EOS NsT Sealer, Behr Concrete & Masonry Waterproofer No. 980, Degussa Thoroclear Special, Monopole Aquaseal Formula 2000, GE Sealants VIP 1510 Water Repellant, and Andek Polaseal M-A. These products are either film forming or penetrants with all of them breathable allowing vapor transmission or having a perm rating greater than one. The UMR study also supports the 100 g/l limit for this category. The specific tests run on the waterproofing concrete/masonry sealers were: alkali, acid and stain resistance, ASTM D1308; prohesion test, ASTM G85, Annex A5; chloride ion screening, CHLOR Test; efflorescence, ASTM D1736 and water vapor transmission, ASTM D1653. The 2001 CARB Survey shows that 25% of the waterproofing sealer products and 20% of their sales meet the 100 g/l limit. The same survey shows 44% of the waterproofing concrete/masonry sealer products and 38% of their sales meet the 100 g/l limit. A more thorough analysis of the technology for this category can be obtained from the 2003 Staff Report for the December 3, 2003 amended Rule 1113. Also, many of those same coatings listed are utilized in vertical and horizontal floor applications with VOCs that easily meet the future limit in the floor category of 50 g/l VOC.

Coating Categories Proposed for VOC Limit Reduction

Bond Breakers

Bond breakers are coatings applied between layers of concrete to prevent the freshly poured top layer of concrete from bonding to the substrate over which it is poured. The primary use for this type of coating is in site-cast tilt-up concrete construction. Different types of resins are used in the formulations such as Oleoresinous binders, paraffin wax, polybutene and other polymer emulsions, acrylics and hydrocarbon. Most are chemically active meaning that they bond with the calcium in the fresh cement paste. The VOC limit for this category is currently 350 g/l and was proposed to be reduced to 100 g/l effective July 1, 2007. However, staff met with manufacturers of these coatings and learned that bond breakers manufactured at or below 100 g/l most always contain waxes and interfere with subsequent topcoats. In preparation for the topcoat, applicators may have been required to use solvents high in VOC content to remove the wax. Therefore, staff will continue to monitor this coating category both for an increase in usage

and technological developments that may allow a lower VOC limit in the future. Emission reductions from lowering this category from the current 350 g/l to the proposed 100 g/l limit were calculated to be 0.02 tpd based on the 2001 CARB Survey. At this time staff will recommend that this category remain at the current VOC limit of 350 g/l.

Concrete-Curing Compounds

Concrete-curing compounds are coatings applied to freshly poured concrete to retard the evaporation of water promoting the optimum cement hydration (chemical combination of water and some other substance in a definite molecular ratio) immediately after placement. As cement hydrates, strength increases and permeability decreases. When hydration stops, strength gain ceases. Many techniques have long been used successfully to help prevent evaporation and provide a good cure, including covering the newly placed concrete with water, wet burlap, polyvinyl sheeting and the use of concrete-curing compounds for high-production operations such as paving and large floor placements. Resins used in the manufacture of concrete-curing compounds include acrylic, acrylic copolymer, alkyd, phenolic, calcium nitrate, hydrocarbon, lignosulfonate, silicate, sodium silicate, wax, styrene acrylate, and polystyrene.

Staff originally had proposed to reduce the VOC limit for this category to 100 g/l. The California Department of Transportation (Caltrans) however, which is one of the principal users and specifiers of concrete-curing compounds expressed concerns regarding the feasibility of the proposed limit. Their primary issue was that concrete-curing compounds that they specify must meet Caltrans Standard Specification 90-7.01B which requires the compounds to conform to ASTM C309 and water loss, in conformance with the requirements of California Test 534, which shall not be more than 0.15-kg/m² in 24 hours. The concrete-curing compounds that meet these requirements for roadways and bridges are not currently manufactured at 100 g/l or below. The lower-VOC compounds based on silicate salts are chemically reactive in concrete rather than film forming and therefore, do not meet ASTM C309. These compounds form a hardened surface and under traffic conditions tend to spall from the bulk of the pavement and create hazards. The fluorosilicate products are similar. The proposed VOC limit of 100 g/l is suitable however, for all other curing compounds that Caltrans uses that conform to the requirements of ASTM C309, Class A used for curbs and gutters, sidewalks, islands, driveways and other miscellaneous concrete areas.

Staff also met with manufacturers of concrete-curing compounds and other than the concerns raised by Caltrans, the manufacturers said the proposed limit of 100 g/l is viable for industrial use, such as tilt-up construction, sidewalks, curbs, etc. In addition staff contacted the Tilt-up Concrete Association (TCA) which agreed that the 100 g/l limit performed at an acceptable level and in fact, the lower-VOC compounds were better for recoating.

Therefore, staff is proposing to modify the definition for concrete-curing compounds to separate those compounds used for roadways and bridges (does not include curbs and gutters, sidewalks, islands, driveways and other miscellaneous concrete areas) by specifying that they meet ASTM Designation C309, Class B and meet a loss of water standard of less than 0.15-kg/m² in 24 hours as determined by Caltrans, California Test 534. These concrete-curing compounds will continue to have a VOC content of 350 g/l and all other concrete-curing compounds will be required to meet the proposed VOC limit of 100 g/l, effective July 1, 2007. Appendix A of this report lists products that meet the proposed 100 g/l VOC limit. The emission reductions gained from this

category are 0.04 tpd. Staff will continue the technology assessment to determine the availability of low-VOC compounds for roadways and bridges for the future.

Dry-Fog Coatings

Dry-fog (dry-fall) coatings are applied by spray application only so that the overspray droplets dry before falling on floors and other surfaces. Overspray generated during atomization of a protective coating or paint can collect on adjacent surfaces or fall, potentially damaging surfaces not intended to be coated, and resulting in extensive clean-up procedures. Dry-fog coatings were developed to reduce the amount of clean-up effort necessary, particularly when spraying overhead surfaces like ceilings inside plants or other facilities. With dry-fog coatings, the overspray releases all of its solvents (dries) as it falls through the air, such that it is dry when it contacts the surface(s) below. This minimizes the need for installation of protective coverings and allows the contractor to literally sweep-up or vacuum the overspray from these surfaces once the application is complete. The VOC limit for this category is currently 400 g/l. Appendix A of this report lists products that meet the proposed 100 g/l VOC limit. Resins used in manufacturing dry-fog coatings include acrylic, acrylic copolymer, alkyd amines epoxy, vinyl toluene, and vinyl acrylic copolymer. Waterborne acrylic dry-fog coatings are an environmentally acceptable alternative to traditional solvent-based ceiling coatings. They emit a very low odor during application, and have a low flash point. Waterborne acrylic dry-fog coatings are especially well suited for spaces with pre-cast concrete or steel beam ceilings. They can save time and make application easier in an occupied space.

After staff contacted and met with manufacturers of dry-fog coatings, the main issues discussed were potential slower dry times associated with low-VOC coatings especially during high humidity conditions and adherence of the coating to dirty surfaces. It was generally agreed that low-VOC dry-fog coatings might require more substrate preparation than a solventborne coating. Staff had initially proposed lowering the VOC content for dry-fog coatings to 100 g/l and after discussions with and input from industry has revised the proposal, with manufacturer support, to allow coatings in this category to meet 150 g/l (effective July 1, 2007) to address the dry time. The emission reductions gained are 0.35 tpd.

Fire-Retardant Coatings

Fire-retardant coatings retard ignition and flame spread. The coating has to be fire tested and rated by a testing agency approved by building code officials for use in bringing building and construction materials into compliance with federal, state, and local building code requirements. The fire-retardant coating and the testing agency must be approved by building code officials. The coating must be tested in accordance with ASTM Test Method E-89 or listed by Underwriter's Laboratories, Inc. as a fire-retardant coating with a flame spread index of less than 25. Staff has identified several low-VOC fire-retardant coatings with comparable performance to their higher VOC counterpart. Additionally, staff was contacted by several coating manufacturers expressing concern regarding the abuse of this category due to significantly high VOC limits. Their concern was confirmed by AQMD compliance staff through a recent enforcement action.

To determine if the fire-retardant low-VOC products performed as well as high-VOC products, AQMD contracted with SGS U.S. Testing Company, Inc. to perform ASTM Test Method E-84 –

Standard Test Method for Surface Burning Characteristics of Building Materials on four fire-retardant coating systems. The substrate chosen for the tests was a $\frac{5}{8}$ inch fire rated gypsum board. The coatings were applied according to the manufacturer's recommendations including primer coats if specified as well as coverage rates. The four fire-retardant systems tested were: a) Dunn Edwards Aristoglo Interior Fire Retardant Alkyd Semi-Gloss Enamel 74 and Super U-365 Interior Fire Retardant Alkyd Enamel Undercoater E 22-1V; b) Benjamin Moore 220 Latex Fire-Retardant Coatings and Regal FirstCoat 216 Premium Primer; c) Pittsburgh Paints Speedhide Interior Fire Retardant Flat Latex (no primer coat recommended); and d) TPR² Non-Flammable Paint IP Series Paint and TPR² Heatshedder Insulative/Non-Flammable HS Series Coatings. The Dunn-Edwards and TPR² fire-retardant coatings are non-intumescent coatings and the Benjamin Moore and Pittsburgh Paint fire-retardant coatings are intumescent coatings. Intumescent coatings generally consist of a primer for adherence, the intumescent base coat, and some type of decorative topcoat to serve as a protective barrier. When exposed to fire, the intumescent base coat expands, forming a thick layer of foam that protects the substrate by thermally insulating it and shielding it from the heat. Intumescent fire resistive coatings are designed to expand up to 15 to 30 times during a fire. In addition, most intumescent coatings generate an ash-like or char layer during their expansion process. As the fire exposure continues, the ash coating erodes exposing the remaining intumescent coating. The technical data sheets list the VOC content for Dunn-Edwards, both topcoat and primer coat, to be less than 350 g/l; the Benjamin Moore topcoat at zero and the primer coat at 100 g/l or less; the Pittsburgh coating at 32.4 g/l; and the TPR² coatings at zero g/l. All the coating systems were placed in the ceiling position for the 10 minute test. Since the nature of the substrate may significantly affect the performance of the fire-retardant coating, an indication of the performance of a fire-retardant coating can be determined by comparing the surface flammability of the coated substrate with that of the uncoated, specific substrate which was completed during the testing. In summary the two non-intumescent coatings had a flame spread of 5 and a smoke density of 5 compared to the intumescent coatings with a flame spread of zero and a smoke density of 20 to 25 with all four coatings performing equally well illustrating that all of the low-VOC products performed equally well to the standard high-VOC product whether they are intumescent or non-intumescent coatings.

The VOC limits for this category are currently divided into clear coatings at 650 g/l and pigmented coatings at 350 g/l. Most fire-retardant coatings are either flat or nonflat coatings and staff initially proposed lowering the VOC limit for this category to 50 g/l to coincide with the flat and nonflat VOC limit. However, fire-retardant coatings could also be manufactured to meet the definition of other coating categories. Therefore, staff is proposing to eliminate this category on January 1, 2007 and allow these coatings to be manufactured to meet any coating definition with the applicable VOC limit. It is not the intent of this proposal to allow fire-retardant coatings to default to the general VOC limit of 250 g/l as provided in paragraph (c)(1) of Rule 1113.

Traffic Coatings

Traffic coatings are applied to public streets, highways, and other surfaces such as curbs, berms, driveways, and parking lots. Resins include acrylic, acrylic copolymer, alkyd, oleoresin, vinyl toluene, and vinyl acrylic copolymer. The 2001 CARB Survey shows traffic coatings at or below 100 g/l to make up 32% of the sales and 48% of the products sold. Appendix A of this report lists products that meet the proposed 100 g/l VOC limit. Staff contacted Caltrans and all

the traffic coatings they use are at or below 100 g/l. Staff has not received any comments regarding this proposal. The VOC limit for this category is currently 150 g/l and is proposed to be reduced to 100 g/l effective July 1, 2007.

Market Penetration

Except for the fire-retardant coatings, the coating categories proposed for lower VOC limits were derived from a list of coatings that was originally submitted to staff by NPCA as tentative candidates for further reduction during Ad hoc subcommittee meetings. Staff reviewed these categories based upon availability and their potential for emission reductions after a comprehensive technology assessment. Staff evaluated the results of the 2001 CARB Architectural Coating Surveys for sales volume, emission inventories, and market penetration for those coatings meeting the proposed limits, and will evaluate the CARB 2004 Survey, should it become available before rule adoption. A preliminary evaluation of the emission inventory and available VOC technology for these categories strongly indicates potential significant cost-effective emission reductions.

Staff compiled Table 1 below, showing the market penetration of coatings already compliant with the proposed VOC limits, based on the data from the 2001 CARB Survey. Since the survey was taken in 2000, additional low VOC products that have been developed and marketed are not reflected in these results. Therefore the market penetration percentages listed in the table for the low-VOC products are probably higher today. This was evident when staff compiled Appendix A and several low-VOC products were found in addition to those listed in the 2001 CARB Survey for the categories proposed for lower VOC limits. Table 1 also lists the number of manufacturers and products for each VOC segment (at or below the proposed limit and above) for each coating category. The market penetration was calculated based on sales volumes listed in the 2001 CARB Survey for all coatings in each category, excluding quart containers or less and low-solids products.

Table 1
California Market Penetration

VOC Range (g/l)	# of Manufacturers	# of Products	Percent of Products	Sales Volume (gallons)	% of Sales Volume	Current Limit	Proposed Limit
Concrete Curing Compounds*							
0-100	10	41	38%	335,591	48%	350	100
>100	16	67	62%	356,694	52%		
Dry-Fog Coatings							
0-150	8	36	40%	154,288	34%	400	150
>150	9	53	60%	305,468	66%		
Traffic Coatings							
0-100	20	129	48%	1,080,400	32%	150	100
>100	18	141	52%	2,258,367	68%		

* Includes all concrete-curing compounds including those for roadways and bridges

PROPOSED AMENDMENT

AQMD Staff Proposal

Consistent with the findings of its technology assessment, staff has determined that manufacturer testing of some reformulated coatings is warranted to facilitate transition to the new limits for a few categories. Staff has expanded its original list to also include specialty primers due to compelling information presented by manufacturers, during the rule development process. The coating categories listed in Table 1 warranted further consideration for lower VOC limits, since they have some of the highest VOC limits of the remaining coating categories and lower VOC products are available.

Based on this approach and data discussed above, staff proposes amending Rule 1113 as follows:

- Modify the definition of concrete-curing compounds by adding the sentence “Concrete-curing compounds manufactured and used for roadways (does not include curbs and gutters, sidewalks, islands, driveways and other miscellaneous concrete areas) are those concrete-curing compounds that meet ASTM Designation C309, Class B, and meet a loss of water standard of less than 0.15-kg/m² in 24 hours as determined by the Caltrans, California Test 534.
- For clarification, staff is proposing to amend the definition of floors to include clear coatings formulated for or applied to concrete flooring” and add the words “represented in part for use on flooring” to the most restrictive provision of the rule. This clarification is necessary to keep the intent of the original definition which was meant to include both opaque and clear coatings. Also, staff is proposing to delete “gymnasiums, and bowling alleys,” from the definition of floor coatings, since clear wood finishes are usually applied to these types of floors.
- Add to the definition of clear wood finishes the words “including floors, decks and porches.”
- Modify the nonflat definition to specify that they are coatings that are not defined under any other definition in this rule and meet the required gloss according to ASTM Test Method D523.
- Add a new definition for nonflat high gloss by separating this category from the general nonflat category and setting an interim VOC limit of 150 g/l which is the current VOC limit. Then extending the future 50 g/l VOC limit effective date from July 1, 2006 to July 1, 2007. Include in the definition that nonflat high gloss coatings are required to register a gloss of 70 or above on a 60 degree meter according to ASTM Test Method D523.
- Clarify the definition of quick-dry enamels to state that they are nonflat high gloss coatings.
- Modify the definition of shellacs to clarify that the resinous secretions come from an “insect” rather than a beetle. Drop the words “thinned with alcohol.” Add the words “providing a quick-drying, solid, protective film for priming and sealing stains and odors, and for wood finishing.”
- Modify the definition of VOC to exclude TBAC when used in formulating IM coatings including zinc-rich primers.

- Amend the requirements in paragraph (c)(2) to allow the use of anti-graffiti IM coatings for residential, commercial, or institutional facility use.
- Clarify that all clear wood finishes regardless of their chemistry are to meet the 275 g/l limit by adding “275” to the Table of Standards. Staff has been requested to clarify the VOC limit for those waterborne clear wood finishes that do not meet the strict definitions of varnish, sanding sealers or lacquer.
- Add a new category to the Table of Standards for concrete-curing compounds for roadways and bridges with the current VOC limit of 350 g/l to separate these compounds from all other types of concrete-curing compounds that are proposed to have a lower VOC limit of 100 g/l effective July 1, 2007.
- Lower the VOC limit for dry-fog coatings from 400 g/l to 150 g/l effective July 1, 2007.
- Add an interim VOC limit for quick-dry enamels of 150 g/l effective July 1, 2006 and delay the 50 g/l limit until July 1, 2007 to coincide with the new nonflat high gloss VOC limits.
- Lower the VOC limit for traffic coatings from 150 g/l to 100 g/l effective July 1, 2007.
- Add a footnote to the Table of Standards that the fire-retardant coating category will be eliminated on January 1, 2007 and subsumed by the coating category for which they are formulated.
- Include a one year sell-through provision for small containers of one quart or less that are not exempt under subparagraph (g)(1)(A).
- Include fire-retardant coatings with a maximum VOC content of 650 g/l for clear coatings and 350 g/l for pigmented coatings and metallic pigmented coatings with a maximum VOC content of 500 g/l to the rule provisions allowing coatings to be included in averaging plans effective July 1, 2006, to provide additional flexibility to manufacturers.
- Delete the labeling requirements for brushing lacquers since they now have the same VOC limit as all clear wood finishes.
- Add a labeling requirement for concrete-curing compounds manufactured and used for roadways and bridges to include the statement “FOR ROADWAYS AND BRIDGES ONLY (Not for Use on Curbs and Gutters, Sidewalks, Islands, Driveways and Other Miscellaneous Concrete Areas)” that shall be prominently displayed effective July 1, 2007.
- Remove the requirement to submit an annual report to the Executive Officer for clear brushing lacquers and rust preventative coatings since the VOC limits are reduced and tracking the sales volume and emission data can be obtained from the CARB surveys.
- Include a requirement for manufacturers of shellacs to submit an annual report to the Executive Officer by April 1 of each calendar year.
- Update administrative requirements such as test methods, technology assessments and acronyms.
- Modify Appendix A of the rule to allow manufacturers to include small containers of varnishes and sanding sealers with a maximum VOC content of 450 g/l in their averaging

program, provided the manufacturer has submitted the appropriate small container annual reports.

Changes to the Table of Standards are shown below.

**TABLE OF STANDARDS
VOC LIMITS
Grams of VOC Per Liter of Coating,
Less Water and Less Exempt Compounds**

COATING	Current Limit*	Effective Date	
		7/1/06	7/1/07
Concrete-Curing Compounds	350		<u>100</u>
<u>Concrete-Curing Compounds For Roadways and Bridges</u>	<u>350</u>		
Dry-Fog Coatings	400		<u>150</u>
Fire Retardant Coatings***			
Clear	650		
Pigmented	350		
<u>Nonflat High Gloss</u>	<u>150</u>		<u>50</u>
Quick-Dry Enamels	250	50 <u>150</u>	<u>50</u>
Specialty Primers	350	100 <u>250</u>	<u>100</u>
Traffic Coatings	150		<u>100</u>

*** The Fire-Retardant Coating Category will be eliminated on January 1, 2007 and subsumed by the coating category for which they are formulated.

NPCA PROPOSAL AND EMISSION IMPACTS

During the past several months, NPCA submitted several proposals to amend Rule 1113. NPCAs last proposal was offered to staff in the form of a consent judgment on March 3, 2006. The following are the recommendations extracted from the Draft Consent Judgment to amend Rule 1113 and their emission impact. Additional NPCA issues are discussed in the comments and responses section of this report.

1. Maintain the existing VOC limits for the following coating categories:
 - (a) Maintain 250 g/l for IM coatings and delay implementation of the 100 g/l VOC limit until July 1, 2007 to allow identification and break out of subcategories requiring VOC limits higher than 100 g/l;
 - (b) Maintain 400 g/l for rust preventative coatings and delay implementation of the 100 g/l VOC limit until July 1, 2007 to allow additional performance testing;
 - (c) Maintain 250 g/l VOC limit for exterior stains;
 - (d) Maintain 250 g/l VOC limit for waterproofing sealers;
 - (e) Maintain 400 g/l VOC limit for waterproofing concrete/masonry sealers;
 - (f) Maintain unlimited VOC limit for small container clear wood finishes (varnishes-clear and semi-transparent, sanding sealers, and lacquers including pigmented lacquers); and
 - (g) Maintain 350 g/l VOC limit for specialty primers.

2. Adopt “Interior” and “Exterior” categories for the following coatings, and the following VOC limits, effective July 1, 2006:
 - (a) Non-Flat Coatings (Interior 50 g/l, Exterior 150 g/l, High Gloss 150 g/l);
 - (b) Primers, Sealers & Undercoaters (Interior 100 g/l, Exterior 200 g/l);
 - (c) Quick Dry Primers, Sealer & Undercoaters (Interior 100 g/l; Exterior 200 g/l);
 - (d) Quick Dry Enamels (Interior 150 g/l; Exterior 250 g/l);
 - (e) Stains (Interior 250 g/l; Exterior 250 g/l); and
 - (f) Floor Coatings (Interior 50 g/l; Exterior 100 g/l).
3. Adopt “Interior” and “Exterior” categories for the flat coatings with the following VOC limits and effective dates:
 - (a) Interior flat coatings 50 g/l effective July 1, 2007 and
 - (b) Exterior flat coatings 100 g/l (no change in the current limit).

Table 2 summarizes the emission impact of the NPCA proposal. Emission data for the NPCA alternative proposal is based on the 2001 CARB Survey, updated sales volumes from 2003 annual reports submitted to CARB and AQMD making up 45% of the California population.

Table 2
Emission Impact of NPCA Alternative Proposal

Categories	AQMD Future Limit (g/l)	AQMD Effective Date	NPCA Limit (g/l)	Emission Reductions Permanently Foregone (tpd)	Emission Reductions Delayed (Gained) (tpd)	NPCA Effective Date
CWF-Small Containers ¹	275	7/1/06	Unlimited	0.91		Open
Flat, Interior ²	50	7/1/08	50		(1.69)	7/1/2007
Flat, Exterior			100	0.93		Open
Floor, Interior	50	7/1/2006	50			7/1/2006
Floor, Exterior			100	0.02		Open
IM ³	100	7/1/2006	250		2.44	7/1/2007
Nonflat, Interior			50			7/1/2006
Nonflat, Exterior	50	7/1/2006	150	0.64		Open
Nonflat, HG (I/E)			150	0.46		Open
PSU, Interior	100	7/1/2006	100			7/1/2006
PSU, Exterior			200	0.28		Open
QDE, Interior	50	7/1/2006	150	0.19		7/1/2006
QDE, Exterior			250	0.03		Open
QDPSU, Interior	100	7/1/2006	100			7/1/2006
QDPSU, Exterior			200	0.01		Open
Rust Preventative	100	7/1/06	400		1.28	1 yr or more
Specialty Primers	100	7/1/06	350	0.14		Open
Stains, Exterior (HS)	100	7/1/2007	250	0.57		Open
WPCMS (HS)	100	7/1/2006	400	0.25		Open
WPS (HS)	100	7/1/2006	250	0.26		Open
Net Total Emission Reductions forgone and delayed				4.70 tpd	2.03	

- ¹ Includes Lacquers, Sanding Sealers, and Varnish
 - ² Gain for 1 year
 - ³ TBAC exempt for IM coatings, emissions postponed for 1 year.
-

Staff is not supportive of the NPCA proposal because, as concluded by staff's technology assessment summarized in previous sections of this report, compliant performing products are available and in increasing numbers practically in all categories proposed for amendment by NPCA and the significant emission reductions delayed or permanently forgone resulting from the proposal. Furthermore, NPCA has not supplied any technical data sufficient to demonstrate the contrary, that the current rule limits are unfeasible. This would not comply with the terms of a federally enforceable Consent Decree that only allows the AQMD to delay or roll-back limits if the Governing Board finds they are technically infeasible based on substantial evidence in the whole record. See Consent Decree for Coalition for Clean Air v SCAQMD, ~~based on substantial evidence in the whole record~~, U.S. District Court for Central District of California, Case No. 97-6916HLH (SHx) entered 2/23/2000.

EMISSION INVENTORY AND EMISSION REDUCTIONS

CARB Surveys

CARB has conducted architectural coating surveys every four or five years with previous surveys conducted in 1976, 1981, 1985, 1989, 1993, 1998 and 2000. The purpose of the surveys is to gather current information on the VOC content and sales volume of architectural coatings. CARB is currently evaluating data collected in the latest survey for sales in 2004. The data from this survey is not currently available, and will be incorporated should it become available in point in time.

The surveys are used in the development of regulations or rules throughout California to reduce the VOC emissions from these products. CARB has provided technical assistance to the air pollution control districts in the form of industry surveys and research. To track the emission contributions of architectural coatings, an inventory was created that is based on the surveys. CARB has also provided regulatory and policy guidance through the development of a SCM for architectural coatings, which was first adopted in 1977, and subsequently amended in 1985, 1989, and 2000.

The 2001 CARB Survey listed all architectural coatings into 51 coating categories. These 51 categories are integrated by definition into the 42 coating categories in the Rule 1113 Table of Standards. The 2001 CARB Survey identified more than 98 million gallons of architectural coatings sold in California in 2000, with 83 percent of that volume coming from waterborne products and 17 percent from solventborne products. Statewide emissions from these coatings are approximately 40,000 tons of VOC per year or about 110 tpd as an annual average. Although waterborne products represented 83 percent of the volume, they only contributed 41 percent of these emissions, while the solventborne products representing 17 percent of the volume sold contributed 59 percent. If emissions from solventborne thinning and cleanup products are included (assumed to be one pint per gallon of solventborne coating and zero for waterborne coatings), the average annual emissions are approximately 128 tpd, with 35 percent of the emissions contributed by waterborne products and 65 percent coming from solventborne products. Information on VOC content was also collected for all 51 coating categories. Coating

sales in the AQMD are estimated based on population and represent 45 percent of those sold statewide. It is assumed that the distribution of waterborne and solventborne coatings is consistent throughout the state.

Values for VOC content summarized in the 2001 CARB Survey were determined by calculating the sales-weighted average. The VOC content values appear as VOC Actual (A-VOC) and VOC Regulatory (R-VOC). A-VOC, also known as Material VOC, is a ratio of the weight of VOCs per a given volume of coating. A-VOC is the value used exclusively to determine the emission inventory. R-VOC is a ratio of the weight of VOCs per a given volume of coating with water and exempt VOCs subtracted from both the numerator (weight) and denominator (volume) and is what appears as the VOC limit in all coating rules. The original rationale behind the R-VOC value was to reflect the relationship of coverage to total solids content and to provide an equivalent basis for comparing the polluting portion of solventborne and waterborne coatings. Also, it was believed that the R-VOC approach would prohibit coating manufacturers from simply diluting a coating with water in order to meet standards specified in coating regulations.

Under a Confidentiality Agreement, AQMD has obtained the detailed data submitted by manufacturers to CARB for compilation. The AQMD has signed a confidentiality agreement with CARB agreeing to comply with the provisions of the California Public Records Act (California Government Code Section 6250 et Seq.), and specifically with Government Code Section 6254.5(a), regarding the disclosure of confidential data provided by architectural coating manufacturers in the 2001 CARB Survey, which was submitted to CARB under a claim of confidentiality. The AQMD also agreed that, as set forth in California Government Code Section 6254.5(e), the above-referenced information shall only be used for purposes that are consistent with existing law. Both the emission inventory and the emission reductions are calculated from data provided in the 2001 CARB Survey. However, the emissions inventory is calculated from total sales volume for all container sizes, whereas emission reduction calculations are based on an adjusted emission inventory calculated using an adjusted sales volume omitting quart containers or less, since they are exempt from the current provisions of Rule 1113 and for containers greater than quarts at or below the current VOC limit. The additional processing of the 2001 CARB Survey data yields numbers that may not be available from the published Summary.

Emission Inventory

The California sales volume and emission inventory in Table 3 has been taken from the 2001 CARB Survey except for specialty primers where staff used the CARB 2003 annual report sales data. The emission inventory for specialty primers was derived by using the same ratio of sales to emissions as the CARB 2001 Survey data. Both the sales volume and emission inventory include all container sizes. The emission inventory is calculated by multiplying the sales volume by the sales weighted average actual-VOC. The AQMD sales volume and emission inventory is based on demographics taken from the 2000 U.S. Census. Although the census shows the population of all of Los Angeles, Orange, Riverside and San Bernardino Counties at 46 percent of the California population, staff used a factor of 45 percent to discount the portions of the counties not within AQMD jurisdiction. The inventory includes sales for all container sizes.

Table 3
Emission Inventory for Selected Coating Categories from the 2001 CARB Survey

Coating Category	CA 2000 Sales (gallons)	CA Emissions (tpy)	AQMD 2000 Sales (gallons)	AQMD Emissions (tpy)	AQMD Emissions (tpd)
Concrete-Curing Compounds	692,419	135.4	311,589	60.93	0.17
Dry-Fog Coatings	459,756	400.3	206,890	180.14	0.49
Nonflat, High Gloss	1,926,436	1,332.1	866,896	599.45	1.64
Quick-Dry Enamels	PD ¹	909.1	PD	409.10	1.12
Specialty Primers ²	1,918,556	571.2	863,350	257.00	0.70
Traffic Coatings	3,338,918	1,107.7	1,502,513	498.47	1.37
Totals		4,454.8		2,005.09	5.49

¹ PD is protected data, fewer than 3 companies reported sales

² Sales updated from CARB 2003 Annual Reports

Adjusted Emission Inventory for Calculating Emission Reductions

Staff adjusted the 2001 CARB Survey baseline inventory to account for sales of: (a) coatings below the proposed VOC limit which were excluded from the inventory, since these coatings are already compliant; (b) California coatings above the current AQMD VOC limits, which were assumed to be at the current AQMD compliance limit, and (c) by excluding small exempt container sales which are not subject to the rule requirements.

This establishes different volume fractions of VOC content, solids, and water/exempt solvents used to adjust both sales and the emission inventory. When the VOC content is reduced, it is replaced by water or exempt compounds and this typically lowers the solids content, reflecting a greater sales volume but usually an overall emission reduction. The adjusted sales volume and emission inventory are used to calculate projected sales and emission inventory at the proposed VOC limit established through technology assessment and data from the 2001 CARB Survey.

The detailed emission inventory calculations may be found in Appendix B. Table 4 summarizes the 2000 adjusted emissions inventory for both California and the AQMD based on the elements previously stated, and with the assumption that 45 percent of the state sales are within the AQMD jurisdiction.

Table 4
2000 California and AQMD Adjusted Emission Inventory

Coating Category Proposed VOC g/l	California Adjusted		AQMD Adjusted	
	Sales	Emission Inventory	Emission Inventory	
	Gallons	tpy	tpy	tpd
Concrete-Curing Compounds-100 ¹	248,648	59	27	0.07
Dry-Fog Coatings-150	305,557	385	173	0.47
Nonflat, High Gloss-50	1,961,924	549	247	0.68
Quick-Dry Enamel-150	932,806	439	198	0.54
Quick-Dry Enamel-50	828,113	235	106	0.29

Coating Category Proposed VOC g/l	California Adjusted		AQMD Adjusted	
	Sales	Emission Inventory	Emission Inventory	
	Gallons	tpy	tpy	tpd
Specialty Primer-250 ²	97,132	125	56	0.15
Specialty Primers-100 ²	99,595	94	42	0.12
Traffic coatings-100	2,249,225	839	377	1.03
Totals		2,725	1,226	3.36

¹ To adjust the sales volume and emissions for concrete-curing compounds for roadways and bridges, staff has removed the solvent based and waterbased products at 270 g/l and above from the state inventory.

Emission Reductions For Coating Categories Proposed For Amendment

The emission reductions are calculated by subtracting the projected emission inventory from the adjusted emission inventory.

The proposed amendments will achieve an overall VOC emission reduction of 0.81 tpd from concrete-curing compounds, dry-fog coatings, and traffic coatings beginning July 1, 2007. The VOC emission reductions postponed for one year will be from the nonflat high gloss category - 0.48 tpd, from the quick-dry enamel category - 0.20 tpd, and from the specialty primer category - 0.08 tpd. The postponed VOC emission reductions will be regained beginning July 1, 2007. Table 5 summarizes the AQMD VOC emission reductions from PAR Rule 1113.

Table 5
Summary of AQMD Emission Reductions

Coating Category	Proposed VOC Limit (g/l)	Emissions Reductions Postponed for one year (tpd)	Additional Emission Reductions (tpd) July 1, 2007
Concrete-Curing Compounds	100		0.04
Dry-Fog Coatings	100		0.35
Nonflat, High Gloss Coatings*	50	0.48	
Quick-Dry Enamel*	150/50	0.20	
Specialty Primers*	250/100	0.08**	
Traffic Coatings	100		0.29
Total		0.77	0.69

* The emission reductions from these categories have been accounted for in prior rule amendments.

** The emissions are based on sales volume from CARB 2003 annual reports.

COST AND COST-EFFECTIVENESS

The data compiled in Appendix A, which summarizes technical data of the many products already being manufactured and sold in today's consumer market for the categories proposed for amendment clearly demonstrate that the proposed VOC limits are not technology forcing, but technically feasible and cost-effective. In order to obtain relevant pricing to determine cost-effectiveness of the proposed amendments, staff contacted architectural coating manufacturers to obtain the cost per gallon for products that comply with the current VOC limits, as well as the

proposed VOC limits. Appendix A shows the average retail cost per gallon obtained from the manufacturers or distributors.

All sales volumes are reflected as adjusted 2001 CARB Survey values based on current AQMD VOC limits. Furthermore, these adjusted volumes are translated into future gallons as a ratio between the solids content of the current adjusted inventory and the future solids content. This cost is then multiplied by the number of gallons sold.

The annual cost increase is derived as the difference between the projected cost of future coatings and the cost of the current coatings. Since the emission inventory is stated in terms of daily emissions or tpd, the emission reduction for all the coating categories is converted to a yearly figure by multiplying by 365 operating days per year. The cost-effectiveness in dollars per ton is calculated by dividing the annual cost increase by emission reductions in tpy and is represented by the following equation. Table 6 itemizes these costs.

$$\text{Cost-Effectiveness} = \frac{\text{Annual Cost Increase}}{\text{Emission Reductions in tpy}}$$

Table 6
Cost Based on the Current Sales Price

Coating Categories with Proposed VOC Limit	Current Rule Cost			Future Cost		
	Average Per Gallon ¹	AQMD 2000 Sales ² (gallons)	Dollars	Average Per Gallon ³	AQMD Projected Sales ⁴ (gallons)	Dollars
Concrete-Curing Compounds - 100 g/l	\$11.22	111,811	\$1,254,519	\$6.18	102,088	\$631,089
Dry-Fog Coatings - 150 g/l	\$28.12	137,501	\$3,865,841	\$20.84	179,013	\$3,729,989
Fire-Retardant Coatings ⁵ - 50 g/l	\$44.56	7,771	\$346,276	\$50.01	7,810	\$390,578
Traffic Coatings - 100 g/l	\$15.82	1,012,151	\$16,012,229	\$17.98	998,981	\$17,958,557
Totals		1,269,234	\$21,478,865		1,287,892	\$22,710,213

¹ Average cost per gallon for products listed in Appendix A, above the proposed VOC limit.

² AQMD adjusted 2000 sales volume in Appendix B, based on current VOC limit.

³ Average cost per gallon for products listed in Appendix A, at or below the proposed VOC limit.

⁴ AQMD projected sales volume in Appendix B, based on the proposed VOC limit.

⁵ Since Fire-Retardant Coatings are proposed to be eliminated on January 1, 2007 and subsumed by the coating category for which they are formulated, the cost-effectiveness analysis assumes worst case that all fire-retardant coatings will have a future VOC limit of 50 g/l. This cost is as determined in the socioeconomic assessment.

Annual Cost Increase = \$22,710,213 – \$21,478,865 = \$1,231,349

Emission Reductions = 0.6910 tpd * 365 days per year = 252 tpy

$$\text{Cost-Effectiveness} = \frac{\$1,231,349}{252 \text{ tpy}} = \$4,882 \text{ per ton VOC reduced}$$

The cost-effectiveness without fire-retardant coatings is \$4,740 per ton of VOC reduced with emission reductions of 250 tpy. These figure were used in calculating the incremental cost-effectiveness for this report, excluding fire-retardant coatings. The fire-retardant coatings are

excluded because they will be subsumed by the coating category for which they are formulated and therefore, there is no alternative control available.

INCREMENTAL COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for a proposed regulation to at least one other control option that would achieve the emission reduction objective. Incremental cost-effectiveness is defined as the difference between the costs of two potential control options, divided by the difference in emission reductions between those control options.

Compliance with the proposed amendments to Rule 1113 is achieved through lowering the VOC content of the coatings. Since only this single control option exists for architectural coatings, it is not possible to calculate incremental cost-effectiveness for different control options for the proposed amendments to Rule 1113. Nevertheless, to provide additional information, staff has provided the incremental cost-effectiveness value for a less stringent proposal excluding fire-retardant coatings. Assuming VOC reductions of 0.43 tpd from less stringent VOC limits for concrete-curing compounds (excluding those used for roadways and bridges), dry-fog coatings and traffic coatings, the incremental cost-effectiveness is estimated at \$11,440 per ton.

Table 7
Cost Based on Optional Proposal

Coating Categories with Alternative Proposed VOC Limits	Current Cost			Future Cost for Optional Proposed VOC Limits		
	Average Cost Per Gallon ¹	AQMD 2000 Sales Volume ² (Gal)	Dollars	Average Cost Per Gallon ³	AQMD Projected Sales Volume ⁴ (Gal)	Dollars
Concrete-Curing Compounds 150 g/l	\$11.52	93,965	\$1,082,306	\$6.47	122,670	\$793,062
Dry-Fog Coatings - 250 g/l	\$28.12	132,933	\$3,737,411	\$20.84	168,690	\$3,514,904
Traffic Coatings - 125 g/l	\$17.55	1,009,199	\$17,706,901	\$17.55	1,045,067	\$18,336,223
Totals		1,236,097	\$22,526,618		1,336,427	\$22,644,189

¹ Average cost per gallon for products listed in Appendix A, above the proposed VOC limit.

² AQMD adjusted 2000 sales volume in Appendix B, based on current VOC limit.

³ Average cost per gallon for products listed in Appendix A, at or below the proposed VOC limit.

⁴ AQMD projected sales volume in Appendix B, based on the optional proposed VOC limit.

Annual Cost Increase = \$22,644,189 - \$22,526,618 = \$117,571

Emission Reductions = 0.43 tpd * 365 days per year = 157 tpy

$$\text{Cost-Effectiveness} = \frac{\$117,571}{157 \text{ tpy}} = \$749 \text{ per ton VOC reduced}$$

Incremental Cost-Effectiveness Formula

$$\begin{aligned} \text{Incremental Cost-Effectiveness (\$/ton of VOC reduced)} &= \frac{\text{Annual Cost Increase of Proposal (\$)}}{\text{Emission Reduction of Proposal(tpy)}} - \frac{\text{Annual Cost Increase of Optional Proposal (\$)}}{\text{Emission Reduction of Optional Proposal (tpy)}} \\ \text{Incremental Cost-effectiveness} &= \frac{\$1,187,047}{250 \text{ tpy}} - \frac{\$117,571}{157 \text{ tpy}} = \$11,440 \text{ per ton of VOC reduced} \end{aligned}$$

SOCIOECONOMIC ASSESSMENT

A socioeconomic analysis of the amendments to Rule 1113 will be performed. The socioeconomic impacts associated with the CEQA alternatives (if any) will also be analyzed. The socioeconomic report will be released no later than 30 days prior to the AQMD Governing Board hearing.

COMPARATIVE ANALYSIS OF ARCHITECTURAL COATING RULES

The following analysis compares Rule 1113 with the U.S. EPA Architectural Coatings rule. The comparison includes proposed changes to Rule 1113 where applicable.

	Rule 1113 – Architectural Coatings	40 CFR, Subpart D – National Volatile Organic Compound Emission Standards for Architectural Coatings
Applicability	Any person, who supplies, sells, offers for sale, or manufactures architectural coatings to be field applied to stationary structures or their appurtenances, and to mobile homes, pavements or curbs as well as any person who applies or solicits the application of architectural coatings in the District.	Each architectural coating manufactured on or after September 13, 1999 for sale or distribution in the U.S., except architectural coatings registered under the Federal Insecticide, Fungicide, and Rodenticide Act manufactured on or after March 13, 2000 for sale or distribution in the U.S.
Definition Modifications	Clear Wood Finishes include floor coatings. Concrete-curing compounds for roadways and bridges required to meet standard specifications. Floor Coatings – to include clear coatings for concrete. Nonflat High Gloss – register 70 or above on a 60 degree meter. Shellac definition includes uses. Volatile Organic Compound – excludes TBAC as a VOC for IM coatings.	Floor Coatings – means an opaque coating. Nonflat Coatings – includes all sheens. Shellac definition includes use for stain blocking. Volatile Organic Compound – excludes TBAC while pursuing additional toxicity testing.
VOC Content Limits	250 g/l default or VOC limits specified in the Table of Standards on listed effective dates.	VOC content not to exceed applicable limit in Table 1 to Subpart D.

	Rule 1113 – Architectural Coatings	40 CFR, Subpart D – National Volatile Organic Compound Emission Standards for Architectural Coatings
Coatings Proposed for lower VOC limits in AQMD	Concrete-Curing Compounds – 100 (excludes those for roadways and bridges) Dry-Fog Coatings – 150 Traffic Coatings - 100	Concrete-Curing Compounds – 350 Dry-Fog Coatings – 400 Traffic Coatings - 150
Most Restrictive VOC Limit	Lowest VOC limit applies if a coating label or literature implies that the coating may fall into two or more categories.	Lowest VOC limit applies if a coating label or literature implies that the coating may fall into two or more categories. 17 exemptions.
Sell-Through Provision	If manufactured prior to effective date of applicable VOC limit in Table, 3-year sell-through including application.	None
Compliance Options	An annual averaging program that allows coatings to be sold with a VOC content greater than the applicable limit, that are offset with a greater volume of sales with a VOC content below the applicable limit. Emissions must be at or below levels as if all sales were compliant. Appendix A - Requirements for Averaging Provision.	Exceedance fees for manufacturers of coatings above the applicable VOC limit. Tonnage exemption if VOC contained in coatings selected for exemption is equal to or less than 10 tpy. No Averaging Provision Requirements.
Container Labeling Requirements	Date of Manufacture or code that displays the date of manufacture. Thinning recommendations, does not include thinning with water. Coating VOC content as supplied and after manufacturers recommended thinning. Coating VOC content and Material VOC content for low-solids coatings. Special labeling for quick-dry primers, sealers and undercoaters, quick-dry enamels, rust preventative coatings and specialty primers. Proposed labeling for concrete-curing compounds	Date of Manufacture or code that displays the date of manufacture. Thinning recommendations, does not include thinning with water. Coating VOC content as supplied and after manufacturers recommended thinning. Material VOC content for low-solids coatings. Special labeling for IM coatings and recycled coatings.
Reporting Requirements:	Averaging Compliance Option recordkeeping and reporting. Annual reports for sales in gallons of recycled coatings and specialty primers. Recycled paint manufacturers must submit a letter certifying they are manufacturers of recycled coatings.	Recycled coatings records. Exceedance fee records. Tonnage exemption records. Initial notification report from each manufacturer and importer of any architectural coating.
Test Methods	Determination of VOC content: U.S. EPA Reference Test Method 24 and for exempt compounds by AQMD Method 303 or AQMD Method 304. Acid Content of Coatings: ASTM Test Method D 1613-85. Metal Content of Coatings: AQMD Method 311. Flame Spread Index: ASTM Test Method E 84-99.	Determination of VOC content: U.S. EPA Reference Test Method 24 (Method 24 prevails). Formulation data or any other reasonable means for predicting that the coating has been formulated as intended (e.g., quality assurance checks, recordkeeping. Alternative Methods: The Administrator may approve, on a case-by-case basis, a manufacturer's or importer's

	Rule 1113 – Architectural Coatings	40 CFR, Subpart D – National Volatile Organic Compound Emission Standards for Architectural Coatings
Test Methods (continued)	<p>Drying Times and Tack-Free Time: ASTM Test Method D 1640 and ASTM Test Method D 1640 (Mechanical Test Method) respectively.</p> <p>Gloss Determination: ASTM Test Method D 523.</p> <p>Compounds for Curing Concrete ASTM Designation C309, Class B</p> <p>Water Retention Efficiency California Test 534</p> <p>Equivalent Test Methods: Other test methods determined to be equivalent by the staffs of the District, the CARB, and the U.S. EPA, and approved in writing by the District Executive Officer may also be used.</p>	<p>use of an alternative method in lieu of Method 24 for determining the VOC content of coatings if the alternative method is demonstrated to the Administrator's satisfaction to provide results that are acceptable for purposes of determining compliance with this subpart.</p>
Technology Assessments	For future VOC limit for flat coatings	None
Exemptions	<p>Containers of one quart or less. Clear wood finish quart container exemption will be phased out in 2006.</p> <p>Coatings manufactured for sale outside AQMD jurisdiction.</p> <p>Emulsion type bituminous pavement sealers.</p> <p>Aerosol coating products.</p> <p>High altitude use of stains/lacquers above 4,000 feet.</p> <p>Thinning to avoid blushing with humidity above 70% and temperature below 65 degrees F at certain times of the year and with a maximum VOC content if the coating contains acetone.</p> <p>Extended VOC limits for Small Businesses meeting specific criteria.</p> <p>Research and development test specimens.</p>	<p>A coating that is manufactured for sale or distribution to architectural coating markets outside the United States; such a coating must not be sold or distributed within the United States as an architectural coating.</p> <p>A coating manufactured prior to September 13, 1999.</p> <p>A coating that is sold in a non-refillable aerosol container.</p> <p>A coating that is collected and redistributed at a paint exchange.</p> <p>A coating that is sold in a container with a volume of one liter or less.</p>

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE

Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the hearing. The draft findings are as follows:

Necessity - The AQMD Governing Board has determined that a need exists to amend Rule 1113 - Architectural Coatings to achieve VOC emission reductions to meet the federal and state ambient air quality standard for ozone, to provide additional transition time with respect to a limited number of coating categories and to clarify rule language.

Authority - The AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, and 41508.

Clarity - The AQMD Governing Board has determined that the proposed amendments to Rule 1113 - Architectural Coatings, are written and displayed so that the meaning can be easily understood by persons directly affected by them.

Consistency - The AQMD Governing Board has determined that PAR 1113 - Architectural Coatings, is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, federal or state regulations.

Non-Duplication - The AQMD Governing Board has determined that the proposed amendments to Rule 1113 do not impose the same requirement as any existing state or federal regulation, and the proposed amendments are necessary and proper to execute the powers and duties granted to, and imposed upon, the AQMD.

Reference - In adopting these amendments, the AQMD Governing Board references the following statutes which the AQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 40001 (rules to achieve ambient air quality standards), 40440(a) (rules to carry out the Air Quality Management Plan), and 40440(c) (cost-effectiveness), 40725 through 40728 and Federal Clean Air Act Sections 171 et seq., 181 et seq., and 116.

COMMENTS AND RESPONSES

During the rule making process, both oral and written questions, comments, and suggestions were received and reviewed by staff and are summarized in this section. After the review, staff revised the proposed amendments to reflect many of the comments and suggestions. If comments regarding the same topic were received from different individuals, staff summarized the topic into one comment and response.

EPA sent a rule review comment letter on the Proposed Amended Rule 1113, work shopped on January 26, 2006 and did not have any comments based on their preliminary review.

CARB sent a comment letter on Proposed Amended Rule 1113 and the Preliminary Draft Staff Report. AQMD Staff has addressed issues related to the 2001 CARB Survey data.

Comment: An exception was taken to the comment in the CEQA Initial Study Review stating that recent survey data and tests have demonstrated there are sufficient compliant coatings available on the market in all coating categories that will meet the VOC limits of Rule 1113 without the use of TBAC. The facts do not support that. A few architectural firms and trade association comments about varnishes and lacquers appears to imply that other coating categories require the use of TBAC as well as the IM category. One trade association commented that AQMD Staff stated that it is not as concerned with the health affects of TBAC as previously because it has been shown that the earlier risk assessment had overstated the risk. Requests were made to consider TBAC as an exempt solvent for all architectural coating

categories especially clear wood finishes, clear floor coatings, rust preventative coatings and chlorinated rubber swimming pool coatings.

Response: One trade association has requested that TBAC be exempt for lacquers and varnishes, in addition to the IM Coatings. As discussed in the Technology Assessment section of this report, as well as the 2003 Staff Report and several Annual Status Reports, staff's evaluation of the current clear wood finish technology has identified numerous products, including lacquers and varnishes that are below the 275 g/l VOC limit formulated without TBAC. The AQMD's technical assessment, specifically the recently completed UMR study, indicate that the waterborne products that are formulated without TBAC perform equally or even better for certain key coating characteristics. However, staff does not agree with the comment that staff is "no longer concerned with the health affects of TBAC." Staff's statements were based on its risk assessment for use in IM Coatings, where applicators typically use Personal Protective Equipment (PPE) including respirators, and the distance to sensitive receptors is sufficient to mitigate the acute risks. However, this risk assessment does not apply to all the categories in the rule, especially coatings used in residential or commercial environments, where applicators do not use respirators and distance to sensitive receptors is typically limited. Furthermore, the technology assessment shows a need for TBAC in IM Coatings for extremely long durability, but does not indicate a need for other coating categories. In performing the background research for TBAC, AQMD staff concluded that there is limited toxicity data available on TBAC and no chronic toxicity has been conducted on the chemical. For this reason the health risk analysis prepared for PAR 1113 in the Draft EA used tert-butyl alcohol (TBA), which has been shown to induce tumors in laboratory animals, as a surrogate for TBAC because of the metabolic conversion of TBAC to TBA. The health risk analysis was prepared for AQMD staff using standard health risk protocol, health risk values provided by OEHHA staff and parameters used by CARB to estimate risk from TBAC. As with other projects evaluating the health impacts from air toxics, AQMD staff relied upon OEHHA/CARB to develop health risk values, associated parameters and procedures. Staff also analyzed CARB documents that assert the benefits of ozone reduction from the use of TBAC. Staff will continue to monitor the additional toxicity studies conducted by the manufacturer of TBAC, Lyondell, and will re-evaluate expanding the exemption to other categories after OEHHA's review of those pending studies.

During the Public Workshop one manufacturer specifically requested that TBAC be allowed for use in floor coatings, rust preventative coatings and chlorinated rubber swimming pool coatings. After meeting with staff and reviewing alternative methods of compliance, the manufacturer sent staff a letter stating that they are no longer seeking an exemption for TBAC for these categories. Their clear industrial floor coatings will meet the 100 g/l limit, the rust preventative coatings can be relabeled and sold as IM coatings for which staff has proposed exempting TBAC, and the sale of non-chlorinated rubber-based compliant swimming pool coatings have gradually increased making an exemption for TBAC no longer necessary.

Lastly, the proposed exemption of TBAC for IM Coatings was discussed over five months ago, and the AQMD Governing Board adopted a similar partial exemption for TBAC in

Rule 1151 – Automotive Refinishing Coatings last fall. Furthermore, IM Coatings formulated with TBAC were first tested by MWD three years ago. Additionally, raw material and additive suppliers have informed staff that they can provide resins and additives (e.g., Rheology Modifiers, Anti-Foaming in TBAC) if there is sufficient demand from the coating manufacturers. However, if some manufacturers are still not ready to commercialize IM coatings with TBAC, they can continue to market their compliant waterborne IM coatings, which perform well for most IM uses, as well as take advantage of alternative compliance options in Rule 1113, including the Averaging Compliance Option and the Sell-Through Provision.

Comment: There is sufficient evidence to conclude that TBAC has low overall acute toxicity. The AQMD should contact OEHHA/CARB regarding their suggested relative exposure level (REL) as it appears that it should be higher than 10,000 $\mu\text{g}/\text{m}^3$ and more likely on the order of 55,000 $\mu\text{g}/\text{m}^3$. It is unlikely that using either REL will indicate that TBAC poses a short-term health risk in any architectural coating category affected by Rule 1113. If AQMD staff is concerned about a potential long-term risk based on occupational use of a few coating categories, we urge staff to use OEHHA's very conservative unit risk factor (URF) to estimate this risk under a reasonable use scenario for that coating category. Given the very conservative exposure assumptions used in Rule 1151, it is unlikely that the speculative chronic risk for TBAC would rise above the CEQA level of concern in any Rule 1113 coating category.

Response: *AQMD staff relies on conclusions and potency factors generated by OEHHA for our health risk assessments. The Draft Environmental Assessment (EA) analyzes the potential acute toxicity using a scenario of painting a large storage tank with IM coatings formulated with TBAC using information from a facility operator. The analysis of this scenario concluded the impacts would not be significant. There exists a potential cancer risk from TBAC reformulated in IM coatings applied at facilities that continuously paint throughout the year resulting in long-term exposure to downwind sensitive receptors. Such facilities include sewage treatment plants, refineries, and water/power facilities. Although a company may apply IM coatings around the facility throughout the year, the location within the site will vary and, thus, the distance to the downwind sensitive receptor changes for each application. Using information from facility operators, the potential carcinogenic and non-carcinogenic acute risk from using IM coatings formulated with TBAC at these three types of facilities was determined to be less than the AQMDs significant threshold for cancer risk. It is conceded that a similar analysis with respect to allowing TBAC in other coating categories may also arrive at chronic and acute risks that are less than AQMDs significant thresholds.*

Nevertheless, AQMDs goal is to minimize toxic impacts to the extent possible. And since compliant, well performing products that rely on alternative chemistries without the potential impacts associated with TBAC's toxicity exist, staff believes the most responsible approach is limiting TBAC's exemption only to those critical categories where there are no alternatives and the public and applicators are not exposed to undue risk. Once additional information regarding TBAC's toxicity becomes available, staff will be prepared to reconsider its current position.

Comment: The lack of chronic exposure testing for TBAC should not be used as an argument for not exempting TBAC in the other architectural coating categories. Those concerns are totally irrelevant where only acute exposure exists. The acute toxicity of TBAC does not warrant the proposed limitation to the IM category only. It would appear that waterborne technology is being forced which may not be legitimate. If that is the intent then waterborne technology must be scrutinized to the same degree for toxicological and environmental impacts as TBAC.

Response: *The proposed amendments limit the use of TBAC to IM coatings and the toxics analysis in the Draft EA examines both cancer and non-cancer health effects from IM coatings, which could be reformulated with TBAC to meet the lower VOC content limit. There is little available information on the toxicity of TBAC, but there is some toxicity information available on one of its metabolites, tert butyl alcohol (TBA). Estimated risk factors for TBA provided by OEHH staff members was used as a surrogate for determining potential cancer risk and non-cancer effects resulting from the limited exemption for TBAC. It should be noted that these surrogate risk factors developed by OEHH staff have not been formally approved by the Scientific Review Panel yet. However, they reflect the best available information from OEHH at this time. Using conservative assumptions, these factors were used to conservatively estimate potential cancer risk and non-cancer effects from TBAC used under the proposed project.*

The AQMDs technical assessment, including the evaluation conducted by MWD and UMR, indicate that the waterborne products that are formulated without TBAC perform equally or even better for certain key coating characteristics for most categories of the rule, except for some IM uses where exceptionally long durability is needed to protect public infrastructure. Therefore, staff has identified the need for TBAC for IM Coatings, and will continue to monitor the additional toxicity studies conducted by Lyondell, and will re-evaluate expanding the exemption to other categories after OEHHAs review of those pending studies.

The response to the previous comment is incorporated in terms of TBAC toxicity.

Comment: Despite claims that low-VOC water based coatings are available for most architectural coating categories, many are still predominantly solvent-borne. There are many reasons for this, including faster and more reproducible dry times, lower cost, improved durability and overall performance. Architectural coating categories are shown in Table 1, ranked according to the percentage of solvent borne coatings. Over half (25/44) of the categories are above 80% solvent borne and 70% are majority solvent borne. This is not a coincidence. If cost-effective water-based coatings that meet performance requirements in these categories could be formulated, producers would make them and people would buy them. Even in categories that are predominantly water-based categories such as Traffic Markings, compliant solvent-based coatings must remain available because water-based coatings do not dry fast enough in cold and humid conditions. Many of these coating categories will soon be subject to lower VOC content limits. It is, therefore, urgent that TBAC be exempted in all architectural coating categories, unless ARB staff can demonstrate that there is a potential health risk under a realistic use scenario.

Response: *Rule 1113 does not specify the type of solvent that a manufacturer must use in formulating their coatings. The rule does specify that the coating category meet a VOC content limit by a certain date. Staff has conducted numerous technology assessments that have shown waterborne coating performance characteristics to be equivalent and in some cases better than the performance characteristics of the solventborne coatings. Staff is not sure which Table 1 the commentator is referencing. Regarding traffic marking coatings, as stated in the technology section of this report, all traffic marking coatings used by Caltrans are less than 100 g/l. The alternative compliance options, such as the Averaging Provision, allow the manufacturers to retain the sale of certain coatings for niche applications that are above the compliance limit.*

Comment: It has come to our attention that, if TBAC is not exempted in concrete cure and seal coatings, some paint manufacturers will use methylene chloride (MC), a Toxic Air Contaminant (TAC) and probable human carcinogen, to comply with the proposed VOC content limits in PAR 1113. CARBs 2001 Architectural Coatings Survey shows that several TAC solvents are used in architectural coatings, and the recent survey update from CARB confirms that tetrachloroethylene (perc) and MC are used in: Bituminous Roof Coatings, Bituminous Roof Primers, Clear Brushing Lacquers, Recycled Coatings, Rust Preventative Coatings, and, Specialty Primers, Sealers, and Undercoaters. PAR 1113 does not prohibit or limit the use of TACs in architectural coatings because, as AQMD states in the NOP of a Draft Environmental Assessment for PAR 1113, non-occupational use of these solvents does not pose a significant health risk to users or the general population: “Since the application of architectural coatings does not occur continuously over a long period of time, carcinogenic risk and long-term (chronic) non-carcinogenic effects will not be analyzed since they are both based on long-term exposure.”

Even using a hypothetical worst-case scenario, TBAC is less potentially hazardous than either perc or methylene chloride. The net effect of limiting the exemption of TBAC will be to increase the use of these more hazardous VOC-exempt TACs and the continued use of highly reactive but inexpensive VOCs such as toluene and xylene.

Once again, the AQMD is proposing to give up real and substantial reductions in ozone and TAC emissions because of inflated concerns about TBAC’s chronic toxicity. This is especially puzzling since the AQMD acknowledges that these chronic effects are irrelevant to short term risk assessment. Clearly, limiting the exemption of TBAC is not health protective in this case and will cause an increase in exposures to more harmful solvents and ozone. To the extent that Rule 1113 allows the use of exempt TACs that are known to be more hazardous than TBAC, the AQMD must exempt TBAC in these coating categories as well or provide a clear rationale for not exempting it based on a demonstrated public health risk. Either chronic toxicity concerns are relevant to short term risk assessment or they are not. They cannot be relevant for TBAC only and they must be demonstrated.

Lyondell Chemical objects to this proposed arbitrary exclusion of the VOC exemption for TBAC from architectural coatings. We request that TBAC be exempted in all categories where the use of more hazardous TACs is allowed.

Response: Perc, MC and even TBAC can currently be used in coating formulations but the commentator's opinion regarding the use of perc and MC in future formulations is speculative and unknown. Staff has not observed the trend of using more hazardous products to formulate coatings as the VOC limit is reduced for other coating categories. The potential hazardous impacts will be dependent on the amount of perc, MC or TBAC used in the formulation, the location of application, the personal protection equipment, etc., and, thus, the impacts are not definitive.

Based on the potential, but unknown toxicity of TBAC, the proposed limited exemption of TBAC is more health protective compared to the complete exemption while providing the coating manufacturers with flexibility in formulating compliant products with the future limits of PAR 1113 for IM coatings. IM coatings have exceptionally long durability, typically require personal protection equipment during application, and some are required to adhere to stringent MWD criteria. With regard to expanding the exemption to other coatings, according to 2001 CARB survey results as listed in Table 2 of the 2005 Annual Status report, some coatings have already recorded high sales data of coatings complying with the lower future VOC content limit. For example, 36 percent of the clear wood finishes had already achieved the future lower VOC content limit. Further, applicators of other coating categories do not typically wear personal protection equipment worn by professionals who apply IM coatings. Staff is opposed to allowing TBAC use in residential and commercial applications until final conclusions regarding the toxicity of TBAC have been reached.

Comment: TBAC should not be allowed for use in any architectural coating category. TBAC forms a metabolite called tert-butyl alcohol (TBA) which is a carcinogen. Based on the cancer potency factor developed by the Office of Environmental Health Hazard Assessment (OEHHA) and the worker exposure levels set by Cal/OSHA of 200 parts per million, the Hazard Evaluation Systems and Information Service calculated that a worker who used TBAC at the worker exposure level would face a risk of 70,000 in a million. Because TBAC is a carcinogen, it should not be exempted for any purpose. The staff report proposes an exemption of TBAC for IM coatings yet indicates that there are over 280 products already that meet the July 1, 2006 VOC limit. The staff report indicates that there is a problem formulating atmospheric IM coatings at 100 g/l. A suggestion would be to not allow TBAC use in IM coatings, but extend the 250 g/l limit for just atmospheric IM coatings. TBAC should not be exempt in any rule until the manufacturer is required to conduct chronic toxicity tests. After OEHHA evaluates the toxicity tests, then the AQMD can decide whether or not to exempt TBAC.

Response: The commentator states that the exemption of TBAC from the VOC definition is not needed to achieve the VOC content limits in PAR 1113 because waterborne coatings are available for use. While this is true for a number of IM coatings, staff recognizes that there is a lack of sufficient atmospheric IM coatings available that meet MWDs most rigorous standards. However, MWD has completed testing of some atmospheric IM coatings formulated with TBAC, which yielded performance characteristics that met even MWDs most rigorous standards. Many IM coating manufacturers have requested that the AQMD delist TBAC for use in coatings critical to the support of the public infrastructure. At the present time there appears to

be no other exempt solvent available to manufacture compliant IM atmospheric coatings with exceptionally long life performance.

To allow a higher VOC limit for these very limited applications would require the establishment of numerous subcategories of IM coatings, as the uses range from chemical immersion, exterior exposure heavy equipment coating, floors, etc., which is difficult to delineate and enforce. Further, while the challenges with atmospheric coatings use have been determined, there might be subcategories of immersion and other uses of the coatings that may also need to use TBAC for exceptionally long life performance. However, since TBAC is sold at high cost, there is no financial incentive for a compliant coating not using TBAC to reformulate with TBAC.

Although staff does not require chronic toxicity testing for compounds exempted from the definition of VOC by U.S. EPA and CARB, staff does attempt to compile as much toxicity, global warming, stratospheric ozone depleting potential, etc., information as is currently available in the CEQA document that is typically prepared when exempting a compound from the definition of VOC. In the case of TBAC, there is little available information on the toxicity of TBAC, but there is some toxicity information available on one of its metabolites, TBA. While there are studies that indicate tumors in rats and mice when exposed to high concentrations of TBA, TBA has not been classified as a human carcinogen yet. Estimated risk factors for TBA provided by OEHHHA staff members were used as a surrogate for determining potential cancer risk and non-cancer effects resulting from the limited exemption for TBAC. It should be noted that these surrogate risk factors developed by OEHHHA staff have not been formally approved by the Scientific Review Panel yet, but have been peer reviewed. However, they reflect the best available information from OEHHHA at this time, and these factors were used to conservatively estimate potential cancer risk and non-cancer effects from TBAC used to formulate IM coatings. In analyzing TBAC's impacts staff also considered CARB documents that assert TBAC's ozone reduction benefits. Staff's very conservative analysis from the use of TBAC based products only, indicates that the potential chronic cancer risk and acute risk is below the AQMDs significant risk threshold. Staff does not recommend expanding the exemption for TBAC to other categories because alternative compliant products that do not pose the added potential risk exist. By limiting the exemption for TBAC to IM coatings, the AQMD recognizes and limits the potential cancer risk exposure due to the use of TBAC while providing the coating manufacturers with flexibility in formulating products compliant with the future IM coatings limits in PAR 1113. Staff will continue to evaluate additional information relative to TBAC's toxicity as it becomes available and reevaluate its position as necessary.

Comment: There has been some speculation that if TBAC is broadly exempted for use in Rule 1113 coatings that TBAC-based coatings will replace latex paints and solvent emissions would increase. Instead, TBAC will be used predominantly to replace other solvents in solvent-based coatings where water-based coatings and other exempt solvents do not provide acceptable performance or cost. TBAC is an effective solvent for a variety of coating resins and is a pound-per-pound replacement for most other solvents. Although TBAC has a strong odor, it is less objectionable than that of solvents such as PCBTF and not as strong as others. TBAC will not be

a “cure-all” for all 100 g/l IM coatings. It evaporates relatively quickly and is not a universal replacement solvent for all current usages.

Response: As indicated in the staff report, based on the 2001 CARB survey, 83% of the total volume of architectural coatings sold in 2000 was waterborne. This is clearly an indication of waterborne technology that has commercial acceptance. Manufacturers will not abandon their waterborne products for solvent-based products that use TBAC. Furthermore, PAR 1113 exempts TBAC from the definition of VOC for IM coatings only. Since this category of coatings is largely solvent based, it is expected that TBAC could be used as a “drop-in” solvent. By limiting TBAC formulations to the IM coating category, it is expected that substituting TBAC formulations for waterborne coatings will also be limited. If TBAC is classified exempt as a VOC, then the replacement of PCBTF with TBAC would not change the solvent emissions since both would be considered exempt solvents and PCBTF can be used today. However, the 2005 Status Report for Rule 1113 presented to the Governing Board in 2006 did not identify PCBTF as a potential replacement solvent for IM coatings. PCBTF is currently exempt under Rule 102 so an exemption for PCBTF is not part of the CEQA proposed project. In a TBAC odor analysis conducted for AQMD Rule 1151, the concentration of TBAC from replacing conventional solvents with TBAC was less than the TBAC odor threshold. The Draft EA project for PAR 1113 has also analyzed the potential odor impact, which concluded that no significant additional odor impacts are expected to result from implementing the proposed amendments.

Comment: The preliminary draft staff report may be misleading regarding MWDs tests with coatings containing TBAC as a solvent. The coatings that were tested were at 250 g/l.

Response: The coatings that were tested with TBAC as a solvent were between 120 g/l and 264 g/l depending upon whether the VOC content of TBAC was included or excluded from the formulation data to determine the total VOC content. MWD has been actively seeking “under 100 g/l” atmospheric exposure coating systems utilizing exempt solvents. Numerous manufactures have indicated that they are developing exempt solvent architectural coating systems, and two manufacturers have recently shipped their compliant products using exempt solvents to be evaluated by MWD, with numerous others that are actively developing IM coatings using TBAC.

Comment: Products are produced at very low-VOCs, they are primarily two-component systems and would be considered zero-VOC if calculated. Under Method 24 the low molecular weight species come off at 110 degrees centigrade test temperature. We cannot use these low molecular weight products in the averaging option of the rule because Method 24 gives a much high VOC content. We request that AQMD look for alternatives to Method 24.

Response: Method 24 is the approved test method to determine compliance. Staff is aware that the test method is more challenging with low-VOC samples. However, because staff was unable to reproduce many of the problematic results associated with high-solids coatings, one possible approach to this question is to investigate the effect of various analytical parameters on method performance. Staff is working with the U.S. EPA, CARB, and industry to improve Method 24 or develop replacements to Method 24.

Work is currently proceeding at Cal Poly San Luis Obispo to develop a possible alternative test method for low-VOC coatings using ASTM Method D 6886. AQMD Laboratory Staff are conducting concurrent analysis of low-VOC products using Method 24 and the Gas Chromatography/Mass Spectrometry method.

Since the rule allows manufacturers to use formulation data to calculate the VOC content displayed on the labels of coatings, staff would recommend that manufacturers analyze the VOC content of their coatings using Method 24 and if they observe a large discrepancy between the formulation data and the Method 24 analysis, they confidentially notify AQMD staff providing formulation data and the noted discrepancy in VOC results.

For compliance purposes, staff will use Method 24 to analyze coatings and if the labeled VOC is quite different from the analysis, staff will request formulation data from the manufacturer. Because less discrepancy is expected between the Method 24 material VOC content and formulation data, primarily due to the possible error rate in water measurements, the Method 24 material VOC content of the coating will then be compared to the formulation data material VOC content and any large discrepancy will be used as an indicator for further analysis and enforcement action, if warranted..

Comment: Changing the definition of floor coatings to include clear coatings is confusing because of the provision in the rule stating that if a coating falls into two categories the lower VOC requirement applies. I may have a clear sealer, clear waterproofing sealer or clear wood preservative for floors and under the proposed amendment the coatings would have to meet the 50 g/l VOC limit when it was intended to place the coating in the higher VOC category.

Response: *If the label or any literature implies that a coating can fall into two separate categories, the coating must comply with the lowest VOC content. Staff agrees with the commentator that a clear sealer as well as other categories labeled for and applied to a floor would be required to meet the lower VOC content. After receiving comments and discussing the issue of overlapping categories with industry, staff is proposing to amend the definition of floors to include clear coatings formulated for or applied to concrete flooring” and add the words “represented in part for use on flooring” to the most restrictive provision of the rule. Therefore if the manufacturer labels a coating as a “clear floor coating for concrete” the coating will have to comply with the VOC limit for floor coatings. However, if the manufacturer states on the label or in the literature, for a coating such as a waterproofing sealer or waterproofing concrete/masonry sealer that the product may be applied to floors, then the coating may meet the VOC limit for that category.*

Comment: The cost analysis in the Preliminary Draft Staff Report does not include the cost for reformulation to those manufacturers that do not have products or need to formulate a product with specific needs that meet the proposed VOC limits.

Response: *The Staff Report includes information on the cost-effectiveness of the proposed reductions. In deriving the cost-effectiveness staff relies on comparing the cost of coatings complying with the future limits and those complying with the current limits.*

All the coatings Listed in Appendix A that meet the future VOC limits are currently for sale and available. Staff obtained the retail cost per gallon from either the manufacturer or distributor. Based on discussions with manufacturers, staff assumes the retail cost of the reformulated products includes the research and development costs incurred by the product manufacturer. Staff has received no information on the actual research and development costs from the manufacturers, despite staffs repetitive requests during this, as well as previous amendments. In defense of such input staff's approach for cost-effectiveness is a reasonable alternative to estimating costs.

Comment: The small container exemption for clear wood finishes should be allowed to continue.

Response: *Staff evaluated clear wood finishes and the use and sale of small containers for this category during the 2003 amendments to Rule 1113 as well during the 2005 technology assessment. Staff's conclusion can be read in both the 2003 Staff Report and the 2005 Annual Status Report. In short, staff concluded that, for clear wood finishes, including lacquers, eliminating the exemption for quart containers or less was feasible based on the technology assessment that indicates numerous adequate substitute products with low-VOC contents are available and in use today. Staff also concluded that this change had the potential for significant emission reductions. The 2001 CARB Survey data shows a relatively large percentage of those coatings sold in quart containers or less exceeds current VOC limits. Since the proposed VOC limit of 275 g/l for clear wood finishes allows the use of a number of low-VOC technologies, an exemption for sales in small containers for this coating category is no longer warranted.*

Comment: As a market leader in the U.S for waterborne technology of clear topcoats used in the hardwood flooring industry, we support the reduction of the VOC limit for the clear wood finish category from 350 g/l to 275 g/l. There has been continued concern expressed by some manufacturers and industry trade organizations as to the durability and aesthetic qualities of waterborne products. Currently, on an annual basis well over 300 million square feet are coated on a worldwide basis with two of our products and in the U.S. this represents over 125 million square feet of flooring finished with these products. Both products are waterborne urethane varnishes used in residential and commercial applications. This volume of flooring would not continue to be finished, year after year, with products that were not performing from the perspective of both durability and aesthetics. The recent Hardwood Floors magazine "Resource Book" for 2006 (the National Wood Flooring Association trade publication) lists 61 manufacturers making waterborne products in the U.S. (compared to 55 in 2004). This compares with 50 companies producing oil modified finishes, 25 making moisture cure, and 14 producing acid-cure (conversion varnish) finishes. Waterborne technology is currently more expensive and is more difficult to produce, yet clearly there are benefits economically to do so as evidenced by the increasing number of waterborne manufacturers.

We also support the elimination of the quart exemption for this category even though we produce these products in these containers and will lose sales as a result. Our product offerings in these small containers are primarily out of necessity from a competitive standpoint.

Response: Staff appreciates the comment and continued support for amendments to this category. The reduction in VOC content for some of the clear wood finishes, in particular, lacquers (including pigmented lacquers) was first proposed and amended in 1996, and subsequently followed by amendments to Rule 1113 for sanding sealers and varnishes, as well as for all coatings in this category. The 2003 amendments were possible due to the efforts of those manufacturers leading the way with waterborne technologies which have proven to out perform their higher-VOC counterpart.

Comment: The environmental benefits of water-based coatings have not been demonstrated. Although the VOC content appears low when compared to solvent-based paints on a pound per gallon of paint basis, it is less so when compared on pounds of VOC per pound of solids because the solids content of water-based paints is typically lower. This basis for comparing paints is more appropriate because it takes into account the amount of VOC emitted to apply the same amount of paint solids. It is understood that current VOC policy for architectural coatings is not based on photochemical reactivity.

Response: Staff has analyzed in detail the solids content of waterborne and solvent-based coatings, and analyzes any potential increase in the volume of coatings needed to provide a comparison for constant solids. In most cases, the solids content for waterborne coatings is similar to their solvent-based counterparts, but staff has found that in some cases waterborne coatings (e.g., 2-Component Waterborne Urethanes) have higher solids than a similar solvent-based formulation, and in other cases, the solvent-based coatings have higher solids. In all these cases, the environmental benefits are always analyzed based on an adjustment to volume to account for the solids in the coatings. Different types of solvents have different degrees of "reactivity," which is the ability to accelerate the formation of ground-level ozone. The use of reactivity as a regulatory tool has been debated at the local, state, and national level for over 20 years. Dr. William Carter, one of the principal researchers of reactivities of various VOC species, identified the state of science with respect to VOC reactivity and described areas where additional work is needed in order to reduce the uncertainty associated with different approaches to assessing reactivity. According to CARB, a number of studies have found that relative reactivities have much smaller uncertainties than absolute reactivities. CARB has implemented a limited reactivity-based rule and the U.S.EPA has also issued a guidance to have states evaluate reactivity-based approaches. CARB is finalizing their new survey which will include revised speciation data and will evaluate the feasibility of reactivity-based approach as part of their next SCM. However, based on the 2001 survey, mass-based VOC control approach was deemed effective for most categories and shows a lower sales weighted average maximum incremental reactivity value for low-VOC coatings. The commentator is correct that the AQMD does not have a VOC policy based on reactivity, but will continue to work with CARB and U.S. EPA staff on a potential reactivity-based approach.

Comment: Manufacturers and the trade association for architectural coating manufacturers support the proposed amendments to create the new category "nonflat high gloss and to maintain the current VOC content limit of 150 g/l for both nonflat high gloss coatings and quick-dry enamels for a period of one year. We also support the proposal to exempt TBAC as a VOC for all IM coatings. A major concern with Rule 1113 is the timeframe IM products have been given

to meet the extremely low-VOC limit of 100 g/l. The least complex coating, flat coatings, have an eight year period before they need to be reformulated to a 50% reduction. The more complex coatings, i.e. non-flats, primers, floor coatings, and the like have had less than four years to reach a 50 – 70% reduction in VOC content. Amazingly, the most complex coatings, IM coatings have to be reformulated to a 75% VOC reduction in less than three years! IM coatings protect the infrastructures within the district from corrosion and deterioration. IM coatings also protect the community by maintaining the integrity of storage vessels containing infectious waste water, poisonous gases, and highly flammable liquids. These products are exposed to high temperatures, caustic and acidic chemicals, heavy abrasions, variable substrates, and a host of severe environmental conditions, yet they are being required to meet the 100 g/l VOC content limit. On the other hand, swimming pool maintenance coatings used to prevent water leaks can continue to contain VOCs up to 340 g/l.

Response: *Staff appreciates your support for the proposed amendments. A brief history on the development of the VOC limits for the coatings in the IM category shows that the 420 g/l VOC limit was first adopted by the AQMD Governing Board in 1996 and then amended in 1999 to set an interim limit of 250 g/l effective January 1, 2004 and a final limit of 100 g/l on July 1, 2006. IM coating manufacturers should have been aware of the timeframe for at least 7 years, since this time frame for reformulation was obtained from the manufacturers. Staff's technology assessment of IM coatings has been ongoing since 1999 and has been explained in several Annual Status Reports including the 2005 Annual Status Report. Staff's latest technology assessment identified hundreds of compliant products. After evaluating the technology assessments staff has concluded that the effective date for the 100 g/l VOC limit should remain as scheduled. In addition, even for the most demanding performance characteristics such as products with exceptional durability, raw material and additive suppliers have already developed products that can be formulated with TBAC. Manufacturers of IM coatings have indicated that they are able to receive the TBAC formulated raw materials and are already starting to provide samples to their large customers. For manufacturers that are still formulating compliant products and are not ready to market, several alternative compliance options are available for the transition period, including the Averaging Compliance Option and Sell-Through Provision. Lastly, large users or manufacturers can apply for variances, if deemed necessary. Results of past studies indicate that coatings meeting the future limit of 100 g/l are currently available except for those atmospheric coatings that are required to meet an exceptionally long life performance for public agencies. Therefore, staff is recommending a limited exemption for TBAC use in IM coatings and zinc-rich primer applications.*

Comment: In the Rule 1113 Annual Report and elsewhere AQMD cites NPCA as suggesting lowering the VOC limits for several coating categories of low-volume specialty coatings (bond breakers, concrete-curing compounds, dry-fog coatings, fire-retardant coatings and traffic coatings. This is misreading NPCA's position. It is true that NPCA mentioned several options that might be considered for further additional reductions but also subdividing the IM category and the limit-to-limit over compliance concept. All of these were raised only as possibilities that would have to be discussed further. Despite their being raised only as possibilities by NPCA, AQMD Staff has indicated that NPCA "suggested" the feasibility of the lower limits for the coating categories mentioned, which is incorrect.

Response: It is not the AQMDs intention to misconstrue the position of NPCA with regard to lowering the VOC limits for several coating categories. The rule proposals are based on information exchanged during the rule development process. At the July 8, 2005 Ad Hoc Committee Meeting with AQMD Governing Board and Los Angeles County Supervisor Michael Antonovich, Councilwoman Jan Perry, NPCA President Andy Doyle agreed, in response to a question from AQMD Executive Officer Barry Wallerstein, that the industry (rule) proposal would be “emissions neutral.” This dialogue was noted in both the July 8, 2005, meeting minute notes as well as in the Annual Status Report on Rule 1113 submitted to the AQMD Governing Board on February 3, 2006. Thus, it appeared that both the AQMD and NPCA recognize the extreme air quality needs of the region by suggesting rule proposals that would achieve the same overall VOC emission reductions while providing the industry flexibility to meet future limits. Subsequently, at both the August 10, 2005, and September 14, 2005, subcommittee meetings, the NPCA proposed subdividing coating categories into interior and exterior applications and keeping the compliance dates for the interiors at the current final VOC content limit with the exception of the interior flats final VOC content limit which was proposed to become effective from one to one and one-half years earlier. The exteriors would presumably be allowed to stay at a higher VOC content limit creating permanent forgone emission reductions. Implementation and enforcement concerns have been raised with regard to properly classifying interior and exterior coatings so this suggestion has not been included as part of the current proposed amendments to Rule 1113. At those same meetings, NPCA suggested additional reductions by lowering the VOC content limit for bond breakers, concrete curing compounds, dry fog coatings, and traffic coatings. Based on staff’s assessment this was a feasible proposal for most categories. This is also a proposal that will reduce emissions. Thus, the AQMD has included this suggestion as part of the proposed project, and has conducted a thorough assessment of the proposed limits, and has garnered support from manufacturers and users. As a result of staff’s technology assessment, staff modified NPCAs original suggestion to reflect the state of technology. The VOC limit for bond breakers is currently 350 g/l and was proposed to be reduced to 100 g/l effective July 1, 2007. However, staff met with manufacturers of these coatings and learned that bond breakers manufactured at or below 100 g/l most always contain waxes and interfere with subsequent topcoats. In preparation for the topcoat, applicators may have been required to use solvents high in VOC content to remove the wax. Therefore, staff will continue to monitor this coating category both for an increase in usage and technological developments that may allow a lower VOC limit in the future. After discussions with manufacturers, Caltrans, and the Tilt-up Concrete Association; concrete-curing compounds have been split into two groups with those used for roadways and bridges retaining the current VOC limit and all other concrete-curing compounds required to meet a VOC content limit of 100 g/l. Staff had initially proposed lowering the VOC content for dry-fog coatings to 100 g/l and after discussions with industry has revised the proposal, with manufacturer support, to allow coatings in this category to meet 150 g/l (effective July 1, 2007) to address the dry time. Staff’s revised proposal will result in cost-effective emission reductions of approximately 0.69 tpd.

Comment: The AQMD Staff recognizes that two of the 2006 technology forcing limits are not technologically feasible - the limits for the non-flat coatings and quick dry enamels. It nonetheless first requires that other 2006 technology forcing limits be lowered below their 2006

technology forcing limits before these two limits can be raised to ensure that there will be no diminution in the over all VOC emissions reductions that were hoped for from the 2006 technology forcing limits.

Such an approach directly contradicts the nature of the technology forcing limits and the purpose of the technology reviews established by the Board in adopting them. While technology may advance for some coatings to allow reductions in some limits to compensate for raising others, nothing guarantees this. The technology reviews mandated by the Board were intended to acknowledge when a technology forcing limit in deed could not be met and this was to be done without requiring that technology forcing limits of other coatings be arbitrarily lowered.

To maintain the emissions neutral goal, AQMD Staff has proposed to cut limits in other coatings categories without checking if these limit reductions are technically feasible. In short, Staff has taken the mandate of the Board and Ad Hoc Committee (to realistically evaluate the technological feasibility of coatings limits before they become effective) to mean only if it suits its existing expectations for overall emission reductions.

Response: *As long as there are commercially available coatings that meet the lower VOC content limits, the proposed rule amendment to lower the VOC content limit does not constitute “technology forcing.” However, AQMD recognizes that transitioning for these lower VOC limits maybe more challenging in certain categories than others. Specifically, staff recognizes the challenge for non-flat coatings and quick dry enamels to comply with the 50 g/l by July 1, 2006, which is why the proposed rule extends the compliance date one year to provide manufacturers of non-flat coatings and quick dry enamels one additional year to take advantage of the latest resin technologies and formulate to the lower VOC content limit. These findings were based on discussions with manufacturers as a part of the ongoing technical assessment. However, staff also found raw materials introduced into the marketplace that mitigate the issues of dirt pickup but concluded that some manufacturers may need additional time to reformulate with these new resins. At the same time, AQMD staff recognizes, based on information provided by NPCA and several coating manufacturers that the VOC content limit of other coating categories can be feasibly lowered from their current required limits. After the NPCA first identified potential coating categories with lower VOC coatings, staff researched and found that many coatings with VOC content limits below the proposed limits are currently available on the market. The Staff Report for PAR 1113 shows that the lower VOC limits for the affected coating categories are a “potential cost-effective means of offsetting the VOC emissions foregone due to the delay in implementation.” This observation does not directly contradict the nature of technology forcing limits since the staff conducted a comprehensive technology assessment, which demonstrated that coatings meeting the future VOC limits were commercially available. Moreover, these limits are not considered technology-forcing since compliant coatings are available. NPCA suggested certain categories for evaluation. Staff conducted a preliminary evaluation of the emission inventory and available VOC technology for these three categories which strongly indicates potential significant cost-effective emission reductions. See the response immediately above with regard to achieving an “emission neutral” proposal.*

Comment: The trade association for architectural coating manufacturers believes that it would be highly useful to subdivide a number of the coatings categories into their “exterior” and “interior” uses. The worry AQMD Staff has expressed over the materials being misapplied (exterior coating being used for interior application) we believe is misplaced. Consumers of the coatings have been able to draw distinctions between the two uses long before there were regulations in place and will continue to do so because exterior coatings do not lend themselves to interior applications. This is one instruction on the can that long practice has demonstrated to be religiously followed by end users.

Response: *Staff does believe that subdividing the suggested coatings which include the following categories flats, nonflats, primers, sealers, undercoaters, quick-dry enamels, and floor coatings into interior and exterior, with each having a different VOC limit, would be difficult to enforce during application of the coatings. Contrary to the commentator’s statement that consumers make a clear distinction between interior and exterior coatings, many of the coatings are manufactured and labeled for dual use. This might suggest to consumers that it is okay to use interior or exterior coatings for either application. State Implementation Plan approval by CARB and U.S. EPA require that emission reductions from the implementation of rule amendments be real, permanent, quantifiable and enforceable. Dividing these categories into interior and exterior would raise significant obstacles to the enforceability of the rule, placing much of the anticipated emission reductions in jeopardy.*

Comment: AQMDs approach in defining most coating types in Rule 1113 in use-based terms is appropriate and recommends extending that approach to include shellacs. As the definition now stands, shellac is one of the few that rely only on the properties of the substance and not all on its uses.

Response: *Staff agrees with the commentator and has modified the definition of shellacs to include its use as a quick-dry, solid, protective film for priming and sealing stains and odors, and for wood finishing.*

Comment: As a manufacturer of coatings in the specialty primer category and not having been able to develop a usable primer at the 100 g/l VOC level which can seal fire and smoke damage, as well as severe water-soluble stains, we respectfully request extending the effective date of 100 g/l for this category. Company staff has evaluated the three-year sell-through and averaging provisions of the rule and neither will work. The technology is moving in the right direction to a lower VOC content and is most likely achievable within the next two years. We have provided AQMD Staff with samples of the coatings listed in the 2005 Annual Status Report, Appendix A to compare their ability to hide water-soluble stains. Our company has been working for a number of years to develop a primer that meets all of the application requirements of this category and contain less than 100 g/l VOC. We have teamed up with a major university to develop new coating formulations to meet the 100 g/l limit; we are working closely with all major suppliers of alkyd resins to achieve alkyd resin miscibility in water; and we are experimenting with exempt solvents. We prefer to have the AQMD staff extend the 350 g/l limit until January 1, 2008. Alternatively, we propose an interim VOC limit of 250 g/l until January 1, 2008. We do not have any problems meeting the 100 g/l for the general primer, sealer, undercoater category.

Response: *After reviewing the available technology and several manufacturer recommendations, staff is proposing to establish an interim VOC limit of 250 g/l effective July 1, 2006 and delay the 100 g/l limit by one year for this category. This approach addresses some comments by manufacturers and allows the AQMD to retain a portion of the emission reductions, effective July 1, 2006, and delays a portion for one year.*

Comment: Rule changes can leave companies with a large number of labels with an incorrect VOC content. The rest of the label is okay. Rather than discarding these expensive labels, can the labels still be used as long as they are properly amended to provide the current compliant labeling language? In the case of a current label for a nonflat coating that stated “Product does not exceed 150 g/l VOC,” another phrase would be added beside or below the old statement, “After 1/6/06, product does not exceed 50 g/l of VOC.”

Response: *Staff agrees, that if a label is printed prior to a new effective date for a change in the VOC content listed in the Table of Standards in Rule 1113, that the manufacturer should be able to make up a smaller label or sticker that will completely cover the incorrect VOC content. Staff does not agree that both the incorrect VOC and the correct VOC be displayed on the label.*

Comment: Our manufacturing company produces a protective clear top coat for use over metallic pigmented paints. The clear coating when applied over metallic paints offers weathering resistance by helping to repel water, improving abrasion resistance and by blocking ultraviolet rays. These properties greatly extend the life and appearance of the metallic coatings. Since the clear coating is part of our metallic paint collection line of coatings, which are significantly under the 500 g/l allowed limit for this category, we are seeking AQMD Staff’s help by requesting that metallic pigmented coatings be allowed into the averaging provision of Rule 1113.

Response: The averaging provision in Rule 1113 allows a manufacturer to average designated coatings, over a compliance period not to exceed one year, such that their actual cumulative emissions from the averaged coatings are less than or equal to the cumulative emissions that would have been allowed under the applicable limits specified in the Table of Standards. Therefore, staff is proposing to amend the rule to allow metallic pigmented coatings to be in the averaging provision of the rule.

Staff received the following comments after Proposed Amended Rule 1113 was noticed for public hearing.

Comment: The special one-year sell-through provision for clear wood finishes in small containers that exceed the current limit of 350 g/l that would be applicable for the three-year sell-through when the new limit goes into effect July 1, 2006, requires that the coatings be manufactured and distributed prior to the July 1, 2006 date. The manufacturer has control over the manufacture date but may have no control over the distribution chain. In addition, the provision includes maintenance of sale and distribution records including manufacture batch codes that manufacturers may not have.

Response: Staff has amended the proposal to change the applicability for these coatings from manufacture and distribution prior to the expiration of the exemption to simply manufacture prior to the date of expiration of the exemption. In addition, the recordkeeping and reporting requirements have been amended to require the same reporting requirements for the one year sell-through that has been required of manufacturers to maintain their small container exemption. Staff has determined this amendment, proposed after the hearing was set, does not significantly change the meaning of the proposed amended rule and would not constitute significant new information pursuant to CEQA guidelines.

Comment: Staff is proposing to separate the nonflat high gloss coatings as a subcategory of the nonflats and zinc-rich primers are a subcategory of industrial maintenances coatings, can the subcategories be averaged?

Response: Rule 1113 specifies the coating categories that manufacturers can select for their averaging compliance plan and, as currently written, nonflat and industrial maintenance coatings may be averaged including the subcategories of high gloss nonflats and zinc-rich industrial maintenance primers. However, for clarification staff has added specific language including the nonflat high gloss and zinc-rich primer subcategories into the averaging list. Staff has determined this amendment, proposed after the hearing was set, only clarifies the proposal and does not significantly change the meaning of the proposed amended rule and would not constitute significant new information pursuant to CEQA guidelines.

Comment: In amending the definition of shellacs to allow these coatings to be used for wood finishing, the staff proposal would allow

Response:

CONCLUSION AND RECOMMENDATION

After working with architectural coating manufacturers, resin manufacturers, the NPCA, and other interested parties to resolve their concerns, staff agrees that the revisions are necessary and recommend adoption of the proposed amendments to Rule 1113.

REFERENCES

2001 Architectural Coatings Survey, Final Report, CARB, October, 2003.

Technical data sheets and material safety data sheets provided by Architectural Coating Manufacturers.

Annual Status Reports on Rule 1113 – Architectural Coatings. AQMD, December 2003 and January 2006.

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Architectural & Industrial Maintenance Coatings Technology Assessment #P2004-24, University of Missouri-Rolla (UMR), 2005.

Final report for AQMD project, “Environmental Chamber Studies of VOC Species in Architectural Coatings and Mobile Source Emissions,” dated July 5, 2005.