VENTURA COUNTY APCD
STAFF REPORT
REVISIONS TO RULE 74.20, ADHESIVES AND SEALANTS
FINAL DRAFT – September 9, 2003

EXECUTIVE SUMMARY

Staff proposes revising Rule 74.20, Adhesives and Sealants, to correct EPA-identified RACT deficiencies. The EPA adopted a Final Limited Approval/Disapproval of Rule 74.20 on April 26, 2002, (Federal Register Vol.67, No. 81) under the authority of the 1990 Amendments to the Clean Air Act, which regulates reactive organic compound (ROC) emissions. EPA noted the following three deficiencies:

1. The 775 g/l ROC limit for other sealant primers does not meet the RACT Limit of 750 g/l.
2. The 150 g/l ROC limit for porous material substrates does not meet the RACT Limit of 120 g/l.
3. ARB Test Method 310, which is cited in Rule 74.20 for determining the ROC content of aerosol adhesives, is not an approved EPA test method.

Staff also proposes revising Rule 74.20 by transferring the regulation of the ROC content of aerosol adhesives to the Air Resources Board (ARB), which recently adopted consumer product regulations covering aerosol adhesives (Subchapter 8.5 of the California Code of Regulations). These new standards for aerosol adhesives have ROC limits ranging from 55 percent to 70 percent by weight, effective in 2002. According to Health and Safety Code Section 41712(h)(3), ARB is required to adopt an aerosol adhesive regulation considered to be Best Available Retrofit Control Technology (BARCT).

Although Health and Safety Code Section 41712(h)(4) allows air districts after January 1, 2000, to adopt more stringent aerosol adhesive regulations than adopted by the state, the existing 25 percent by weight standard in Rule 74.20 was determined by ARB staff to be technically infeasible. Although ARB's new aerosol adhesive regulation was determined to be BARCT, this proposed revision to Rule 74.20 will still result in the relaxation of the SIP-approved 25 percent emission standard. Therefore, staff proposes additional ROC emission reductions from the use of architectural-type adhesives to offset the higher emissions from aerosol adhesives.

The proposed new emission standards are based on existing standards in the South Coast AQMD Rule 1168. Many new adhesive products comply with these standards and are available at retail locations as determined by a recent staff survey. Staff proposes adopting new standards for the adhesive categories as shown in Table 1. The results of the staff survey on adhesive products are summarized in Table 3.

Table 1. Proposed New Standards for Adhesives

Adhesive Category	Proposed ROC Standard
Ceramic Tile	65 g/l
Contact Adhesive	80 g/l
Cove Base	50 g/l
Drywall	50 g/l
Fiberglass Substrate	80 g/l
Indoor Carpet & Carpet Pad	50 g/l
Multipurpose Architectural	70 g/l
Panel	50 g/l
Rubber Flooring	60 g/l
Sheet-Applied Rubber Lining Operations	850 g/l*
Special Purpose Contact Adhesive	250 g/l*
Structural Wood Member	140 g/l
Subfloor	50 g/l
Top & Trim Adhesive	540 g/1*
VCT & Asphalt Tile	50 g/l
Wood Flooring	100 g/l
Plastic Foam Substrate	50 g/l
Porous Material Substrate	50 g/l
Marine Deck Sealants	760 g/l
Other Sealant Primers	750 g/l

These proposed revisions to Rule 74.20 will affect unpermitted or area sources using adhesives for residential and commercial construction or remodeling. The estimated ROC emissions reductions from these new ROC standards in total are approximately 22 tons of ROC per year, which will offset the 14 tons of ROC per year lost from relaxing the aerosol adhesive standard.

The inclusion of an ROC standard of 850 g/l for Sheet-Applied Rubber Lining Operations will not have any emission impacts because there are no existing sources. Also, the inclusion of an ROC standard of 760 g/l for marine deck sealants will have minimal emissions impact based on a 1995 pleasure

* ROC Standards Relaxed in Table 1

craft coating survey. This survey indicated ROC emissions from marine deck sealants at less than 100 pounds per year.

A recent survey of cost of reformulated adhesives indicates a slight savings to no change in cost. Cost savings were found for ceramic tile and subfloor adhesive categories, while there was no change in cost for the cove base adhesive category. For other adhesive categories, the cost to adhesive manufacturers and consumers for implementing the proposed amendments to Rule 74.20 is zero, based on the survey that only complying adhesives are currently being offered for sale in Ventura County.

Another proposed amendment includes a new exemption for adhesives used to assemble inkjet printer heads, provided these adhesives contain less than 100 grams of ROC per liter of material (actual basis). Hitachi has reformulated its adhesive used to bond the thin metal on ink jet printer heads with over 86 percent acetone. This new adhesive has an actual ROC content of 96 grams per liter of material. Hitachi also uses a blend of alcohol (25 percent) with water to do surface prep cleaning for the ink jet heads. Also, Staff proposes an ROC limit of 200 grams per liter for this cleaning process.

Hitachi has reduced their emissions from adhesive operations by 90 percent by reformulating its adhesive and using acetone instead of MEK (Methyl Ethyl Ketone) cleaners where feasible. The remaining emissions from adhesive operations at the facility are less than 200 pounds of ROC per year based on the emission inventory of the past year from Hitachi.

Exemptions from the ROC requirements in the rule are proposed for cyanoacrylate and methacrylate adhesives, which have very low emissions. These adhesives do not contain a solvent carrier. Although the reactive monomers may be volatile, the emissions are very low because polymer reactions occur during the bonding process.

Another exemption from the ROC requirements is proposed for thin metal laminating operations of electronic or magnetic components. Since there are no such operations in the county, no new emissions will occur as a result of this exemption. New sources will be required to install Best Available Control Technology.

This report contains five additional sections: (1) Background, (2) Proposed Rule Requirements, (3) Comparison of Proposed Rule Requirements with Other Air Pollution Control Requirements, (4) Impact of the Proposed Rule, and (5) Environmental Impacts of Methods of Compliance/CEQA. The first section provides background information including regulatory history and source description. The second section explains the key features of the proposed revisions to Rule 74.20. The third section compares the proposed requirements with existing federal requirements and Best Available Control Technology (BACT). The fourth section is an analysis of the proposed amendment's effect on ROC emissions and socioeconomic impacts. The last section examines the environmental impacts of compliance methods and the mitigations of those impacts, and CEQA Compliance.

BACKGROUND

Introduction

Ventura County APCD Rule 74.20, Adhesives and Sealants, was adopted on June 8, 1993, and revised on January 14, 1997. The analysis of the source emissions, rule requirements, and control technologies were summarized in the staff reports associated with those two rule adoptions. This report will focus on correcting EPA-identified deficiencies and transferring the regulation of aerosol adhesives from Rule 74.20 to consumer products regulations adopted by the state. Additionally, new ROC standards for architectural and miscellaneous-type adhesives are being proposed to offset the emissions lost by the relaxation of the aerosol adhesive standard.

Adhesive and Sealant Operations

The ROC emissions from persons or sources using adhesives or sealants are based on organic solvent evaporation from the use of adhesives, sealants, adhesive primers, sealant primers, and solvent cleaners. The reduction of emissions from adhesives is achieved similarly to techniques used to reduce emissions from coatings. Basically, organic solvent-based adhesives are replaced with water-based adhesives, acetone-based adhesives, or high-solid adhesives such as hot-melt adhesives.

Table 2. Permitted Adhesives Operations in Ventura County

Facility Name	Actual ROC Emissions (tons/year)	Type of Operation	SIC Code
Aquaria	0.29	Aquarium Manufacturer	3231
California Amplifier	1.02	Communication Equip.	3663
Drum Workshop	0.12	Musical Instruments	3931
Enhanced Medical Technologies	0.15	Medical Supply Mfg	3842
ERG International	0.01	Commercial Furniture	2522
Freedom Designs	0.75	Medical Supplies	3842
Hitachi	1.73	Inkjet Printer Heads	3955
Milgard Manufacturing	0.71	Window Manufacturer	3211
Pentair Pool Products	2.42	Pool Equipment	3648
Perma Plaque	2.19	Plaques	3999
PTI Technologies	0.10	Industrial Equipment	3728
Robbins Auto Top	1.10	Automotive Convertible Top Manufacturing	3711
Santa Maria Tire	0.18	Truck Tire Retreading	7534
Shell Solar Industries	0.19	Solar cells	
Technicolor Optical Media Services	0.01	Record, Tapes, DVDs	3652
Waterway Plastics	0.68	Plastic Plumbing Fixtures	3088
TOTAL ROC EMISSIONS	11.65		

Emission Inventory

The adhesive operations currently permitted by the District are shown in Table 2. This table provides the actual emissions from each of the 16 permitted sources. The total is about 12 tons of ROC per year.

According to the ARB inventory from the 1993 staff report, the ROC emission inventory from adhesives and sealants in Ventura County after the implementation of Rule 74.20 was 329 tons of ROC per year. The 1997 revisions reduced ROC emissions by 11 tons per year. Thus, the current ROC emission inventory is 318 tons of ROC per year. Therefore, over 95 percent of the emissions from adhesives are from area or non-permitted sources including building and plumbing contractors, shoe repair operations, and do-it-yourself homeowners.

Table 3. Examples of Low ROC Adhesives Available in Ventura County

ADHESIVE CATEGORY	PRODUCT NAME	PRODUCT ROC (g/l)	PROPOSED STANDARD (g/l)
CERAMIC TILE	Tile Perfect Inc. Pre-Mixed Thinset	50	65
CERAMIC TILE	Universal Tile	0	65
CERAMIC TILE	Tile Perfect Inc. Adhesive & Grout	50	65
CERAMIC TILE	Macklanburg-Duncan Co. Lock Bond Ceramic Wall/Floor Tile	48	65
CONTACT ADHESIVE	ICI Liquid Nail Latex Waterborne	70	80
CONTACT ADHESIVE	3M Fast Bond 30 Waterborne	77	80

ADHESIVE CATEGORY	PRODUCT NAME	PRODUCT ROC (g/l)	Proposed Standard (g/l)
CONTACT ADHESIVE	Wilsonart Water-Based	20	80
COVE BASE	Macklanburg-Duncan Latex Cove Base	31	50
COVE BASE	ROPPE “205”	0	50
COVE BASE	HENRY “440LC”	0	50
COVE BASE	DAP Cove Base	25	50
COVE BASE	DuPont “400” Cove Base	0	50
COVE BASE	W.F. TAYLOR “2027” Cove Base	0	50
INDOOR CARPET	HENRY “176” Bulldog Carpet/Vinyl	5	50
INDOOR CARPET	HENRY “356” Carpet/Sheet Vinyl	4	50
INDOOR CARPET	W.F. TAYLOR “2057” Commercial Carpet	0	50
INDOOR CARPET	ROBERTS “3000” Multipurpose Carpet & Sheet Vinyl	0	50
INDOOR CARPET	SHAW “1000” Superior Grade Carpet	0	50
INDOOR CARPET	SHAW “2000” Premium Grade Carpet	0	50
INDOOR CARPET	SHAW “2057” Commercial Carpet	0	50
INDOOR CARPET	Dupont “550”Fast Tack Carpet	0	50
INDOOR CARPET	Dupont “560”Redi-Set Carpet	0	50
INDOOR CARPET	DuPont “570”Commercial Carpet	0	50
INDOOR CARPET	HENRY “377” Carpet Pad	3	50
INDOOR CARPET	HENRY “478”Carpet	3	50
INDOOR CARPET	HENRY “170”Carpet-Felt Backing	3	50
INDOOR CARPET	TEC “717” Carpet/Floor	0	50
INDOOR CARPET	TEC “702” CARPET /Floor	0	50
MULTIPURPOSE ARCHITECTURAL	ICI MACCOHeavy Duty Construction	70	70
MULTIPURPOSE ARCHITECTURAL	ICI MACCO Fiberglass Reinforced Panels (FRP)	28	70
MULTIPURPOSE ARCHITECTURAL	HENRY “444” FRP Panel	52	70
MULTIPURPOSE ARCHITECTURAL	HENRY “237” AcoustiGum Acoustical Ceiling Tile	5	70
MULTIPURPOSE ARCHITECTURAL	DAP “Beat the Nails”	<50	70
MULTIPURPOSE ARCHITECTURAL	W.F.Taylor“2060” Foreman Multipurpose	0	70
MULTIPURPOSE ARCHITECTURAL	W.F. Taylor “2072”Mult-Purpose	64	70
MULTIPURPOSE ARCHITECTURAL	W.F.TAYLOR “2087” EVR-WHITE Sheet Goods	0	70
MULTIPURPOSE ARCHITECTURAL	Macklanburg-Duncan “2100” Multipurpose	7	70
MULTIPURPOSE ARCHITECTURAL	Macklanburg-Duncan “2200” Multipurpose	7	70
MULTIPURPOSE ARCHITECTURAL	Macklanburg-Duncan “2300” Multipurpose	<10	70
MULTIPURPOSE ARCHITECTURAL	Macklanburg-Duncan “2600” Wet Set Adhesive	0	70
MULTIPURPOSE ARCHITECTURAL	Dupont “530”Multi-Purpose	0	70

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ADHESIVE CATEGORY	PRODUCT NAME	PRODUCT ROC (g/l)	Proposed Standard (g/l)
MULTIPURPOSE ARCHITECTURAL	W.F. Taylor "2070" Multipurpose	0	70
MULTIPURPOSE ARCHITECTURAL	W.F. Taylor "2080"Dual Purpose	0	70
PLASTIC FOAM SUBSTRATE	3M Fastbond Foam "100"	13	50
PLASTIC FOAM SUBSTRATE	3M Fastbond 48-NF Flexible Foam	0	50
RUBBER FLOORING	DAP Weldwood Multi-Purpose	0	60
RUBBER FLOORING	W.F. Taylor "2093" Rubber Floor	38	60
RUBBER FLOORING	W.F. Taylor "2094" Rubber Floor	0	60
SUBFLOOR	ICI MACCO Subfloor	<50	50
SUBFLOOR	DAP "4000" Subfloor	<50	50
VCT/ASPHALT TILE	ARMSTRONG "S-750" Floor Tile, Vinyl Composition Tile (VCT)	5	50
VCT/ASPHALT TILE	W.F. Taylor "2030" Floor Tile, VCT	0	50
VCT/ASPHALT TILE	HENRY "430" Floor Tile, VCT	49	50
WOOD FLOORING	HENRY "971" PlankPro Wood Parquet Flooring	0	100
WOOD FLOORING	W.F. TAYLOR "2051" Wood Flooring	11	100

PROPOSED RULE REQUIREMENTS

Exemption for Aerosol Adhesives (Sections B.1, B.2, B.3, B.12, B.14, C.4.b and E.3)

A significant proposed revision to Rule 74.20 involves deleting all requirements for aerosol adhesives. However, the state VOC standards for aerosol adhesives ranges from 55 percent to 70 percent by weight, which is less stringent than the 25 percent standard existing in Rule 74.20.

This relaxation of an EPA SIP-approved rule requirement for aerosol adhesives will result in an emission shortfall of about 14 tons of ROC per year according to the 3M variance application cited by the January 14, 1997, staff report for the previous revision to Rule 74.20. Thus, staff proposes new requirements for architectural-type adhesives to offset this emission shortfall.

Adhesive ROC Standards (Sections B.1, B.2, and B.3)

New Section B.1 has been added to clarify the existing default ROC content limits for adhesives and adhesive primers, which is 250 g/l less water and exempt compounds. The default Sealant limit remains at 420 g/l as designated by the "Other Sealant" category in Section B.2. Thus, any adhesive or adhesive primer not regulated under Sections B.2 or B.3 would be required to meet a 250 g/l limit.

The proposed new ROC adhesive standards are summarized in Table 1 in the Executive Summary. These standards are based on the South Coast AQMD Rule 1168 requirements in effect since September 1, 2001. Since Ventura County borders the South Coast AQMD, many adhesives sold in Ventura County already comply with the proposed standards. Examples of currently available adhesives complying with the proposed standards are shown in Table 3.

New ROC adhesive product categories and limits are proposed for Section B.2 and B.3 to be the same as existing limits and categories in SCAQMD Rule 1168. Limits with future effective dates in SCAQMD Rule 1168 have not been included.

Written comments were received from the National Paint and Coatings Association (NPCA is an adhesive industry association) and ITW-TACC, a major adhesive manufacturer. The original draft did not include any changes to the contact adhesive category, which has had an ROC limit of 200 g/l in effect since January 1, 1995. Both NPCA and ITW-TACC indicated the need for a Special Purpose Contact Adhesive category to bond nonporous

surfaces. In a letter dated March 24, 2003, ITW indicated they successfully developed a solvent-based contact adhesive with a VOC limit of 250 g/l.

As a result, staff is proposing contact adhesive standards identical to SCAQMD Rule 1168 (currently in effect). Staff is proposing a new category called Special Purpose Contact Adhesives with an ROC limit of 250 g/l, which is 25 percent higher than the existing limit. At the same time, staff is proposing to reduce the general contact adhesive limit to from 200 to 80 g/l, which can be met using available water-based contact adhesives.

One outstanding issue from the NPCA is a request for a one-gallon exemption for retail contact adhesives. In the past, adhesive manufacturers have had many consumer complaints from the performance of water-based contact cement. Staff is aware that these products are not as forgiving as the solvent-based variety. However, the benefits to the user of easy water cleanup and not being exposed to harmful vapors make the extra effort worthwhile. Laboratory performance of water-based contact adhesive has been demonstrated, and 3M's Fast Bond 30 water-based contact adhesive has been on the market for the past 30 years. For those consumers that still want to apply solvent-based contact adhesives, the rule contains a one-pint exemption, and there will be several handheld aerosol contact adhesive products on the market.

The references to "sealants," "adhesive primers," "sealant primers" in Section B.3 have been deleted to avoid conflicts with the "Other Sealants," "Other Adhesive Primers," and "Other Sealant Primers" standards in Section B.2. Rule 74.20 has been structured so ROC standard applicability involves first reviewing the standards in Section B.2 for applicability, then defaulting to standards in B.3, and finally to the default standard of Section B.1.

Exemption for Low-ROC Adhesives (Section C.4.a)

Staff is proposing to modify the existing exemption for low ROC adhesives at 20 g/l or lower to include adhesive primers. In addition, this exemption threshold level is proposed to be based on the actual ROC content (grams per liter of material) rather than be calculated on a less water or less exempt organic compound basis. Robbins Auto Top, a local manufacturer of convertible vinyl tops for automobiles, is in the process of replacing their high-ROC adhesives with ones based on an acetone formulation. Calculating this exemption level on an actual basis will allow them to use these very low ROC Adhesives.

Exemption for Cyanoacrylate and Methacrylate Adhesives (Example: Superglue) (Sections C.4.c and E.8)

An exemption from rule requirements is proposed for cyanoacrylate and methacrylate adhesives because it has been determined very little ROC emissions occur during bond formation. These reactive monomer type adhesives are either moisture or two-component cured and bond very quickly. The odor from these glues results from the volatilization of the acrylate monomers. A special ROC test method developed by the South Coast AQMD accounted for the volatile resins bonding to the substrate quickly resulting in very low emissions. Also, staff proposes to delete this test method (Section E.8), which is used to determine the ROC content of the cyanoacrylate adhesives.

Therefore, since all acrylates tested to date have complied with applicable ROC standards and are inherently low emission adhesives, an exemption from all rule requirements is proposed. Similar exemptions for cyanoacrylates may be found in South AQMD Rule 1168, Adhesive and Sealant Applications, Section (k)(13), and the Air Resources Board's 1998 Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Adhesives and Sealants, Section IV.A.9.

Inkjet Printer Head Assembly Operations (Sections B.4 and C.3.g)

Another proposed amendment includes a new exemption from the Adhesive ROC standard in Subsection B.3 for inkjet printer head assembly operations, as long as the adhesive used in the assembly has an actual ROC content of less than 100 grams of ROC per liter of material (Subsection C.3.G). Hitachi reformulated their adhesive used to bond the thin metal on ink jet printer heads with over 86 percent acetone. This new adhesive has an actual ROC content of 96 grams per liter. Hitachi also uses a blend of alcohol (25 percent) with water to do surface prep cleaning for the ink jet heads. Staff proposes an ROC limit of 200 grams per liter for this cleaning process (Subsection B.4).

Hitachi has reduced their emissions from adhesive operations by 90 percent by reformulating their adhesive and using acetone instead of MEK cleaners where feasible. The emissions from their adhesive

operations are less than 200 pounds of ROC per year based on their emission inventory for the past year.

Exemption for Thin Metal Laminating Operations for Electronic or Magnetic Components (Section C.3.h)

An exemption from ROC requirements is proposed for thin metal laminating operations in the assembly of electronic or magnetic components. This is a process of bonding multiple layers of metal to metal or metal to plastic in the production of these components. The thickness of the bond line must be less than 0.25 mil to qualify as a thin metal laminating operation. An exclusion from this category is proposed for inkjet printer head assembly operations since a separate provision has been proposed in the rule for these operations. No emission reductions will result from this proposed exemption since there are no sources in the county. Any new sources would be subject to Best Available Control Technology requirements.

Table 4. ROC Standards in proposed Rule 74.20 vs. SCAQMD Rule 1168

ADHESIVE CATEGORY	VCAPCD RULE 74.20 ROC Standard (g/l)	SCAQMD Rule 1168 ROC Standard (g/l)
PVC Welding	510	285
CPVC Welding	490	270
Other Plastic Welding	500	250
Plastic Cement Welding Primer	650	250
Top and Trim Adhesive	540	250

COMPARISON OF PROPOSED RULE REQUIREMENTS WITH OTHER AIR POLLUTION CONTROL REQUIREMENTS

Health and Safety Code Section 40727.2 requires Districts to compare the requirements of a proposed revised rule with other air pollution control requirements. These other air pollution control requirements include federal New Source Performance Standards (NSPS), federal National Emissions Standards for Hazardous Air Pollutants (NESHAPS), Best Available Control Technology (BACT) and any other District rule applying to the same equipment.

Comparison with Federal and APCD Regulations

There are no federal regulations regarding the use of adhesives and sealants. Under Clean Air Act Section 183(e), the Environmental Protection Agency has scheduled development of a consumer and commercial products regulation in 2003, which will regulate miscellaneous industrial adhesives. With the exception of Rule 74.13, Aerospace Manufacturing Operation; Rule 74.19, Graphic Arts; and Rule 74.19.1, Screen Printing; there are no other APCD rules applying to adhesive operations. Adhesives subject to these rules are already exempt from Rule 74.20.

Comparison with BACT Requirements

Health and Safety Code Section 40727.2 (a) requires the proposed amendments to Rule 74.20 be compared with Best Available Control Technology (BACT). The CAPCOA Engineering Manager Rule Development Subcommittee developed guidance on this matter. Under this guidance, it was recommended BACT be interpreted as a District's BACT determination.

BACT for the adhesive operations was determined by surveying the BACT determinations from the South Coast AQMD and the Air Resources Board BACT Clearinghouse. The SCAQMD BACT guideline is published on their website for permitting purposes in Appendix B. The BACT Clearinghouse is published on the Air Resources Board website and is a compilation of permit applications submitted by air districts in California showing BACT requirements imposed on new sources.

One BACT determination from the SCAQMD guidelines was for a plastic lamination process. This guidance indicated SCAMD Rule 1168 was BACT for adhesive operations. The proposed amendments to Rule 74.20 are similar to SCAQMD Rule 1168 except more stringent ROC adhesive standards with future effective dates from the South Coast rule, as shown in Table 4, are not being considered at this time. These more stringent standards are technology-forcing.

IMPACT OF THE PROPOSED RULE

ROC Emissions Impacts

The current ROC emission inventory from the use of adhesives and sealants is about 158 tons of ROC per year. According to an industry survey done by Rauch Associates, Inc., about 31 percent of all adhesives are used for onsite construction and remodeling, including flooring and building construction, and miscellaneous bonding operations, including bonding of foam and other porous substrates. Thus, the proposed amendments will impact adhesive sources emitting approximately 49 tons of ROC per year.

The emission reductions resulting from the proposed ROC Standards are summarized in Table 5. The average percent reduction from the proposed standards is approximately 45 percent, assuming equal contribution from each adhesive category. Therefore, the estimated emission reductions from the proposed amendmentsto ROC standards to Rule 74.20 is 22 tons of ROC per year. Overall, the emission reductions from the rule amendment are 8 tons per year ROC (22-14 (aerosol adhesives)= 8 tons per year ROC).

Table 5. ROC Emission Reductions from Proposed ROC Standards

Adhesive Category	Existing ROC Standard (g/l)	Proposed ROC Standard (g/l)	Percent Reduction (%)
Ceramic Tile	130	65	50
Contact Adhesive	200	80	60
Cove Base	150	50	67
Drywall	200	50	75
Fiberglass Substrate	200	80	60
Indoor Carpet/Carpet Pad	150	50	67
Multipurpose Architectural	200	70	65
Panel	200	50	75
Plastic Foam Substrate	120	50	58
Porous Material Substrate	150	50	67
Rubber Flooring	150	60	60
Special Purpose Contact	200	250	-25
Structural Wood	200	140	30
Subfloor	200	50	75
VCT/Asphalt Tile	150	50	67
Top and Trim	250	540	-116
Wood Flooring	150	100	33
AVERAGE REDUCTION			45

ATTACHMENT 3

Cost-Effectiveness

According to the 1991 Air Quality Management Plan, Control Measure R-314, Adhesives, was ranked as the most cost-effective measure in that Plan. The actual cost-effectiveness based on the proposed rule amendments and updated information is even lower than the original rule adoption. The cost-effectiveness analysis from the 1993 staff report projected a savings of 53 cents per pound of ROC reduced to a cost of $1.16 per pound of ROC reduced. The projected cost-effectiveness for the proposed rule amendments ranges from a cost savings to zero cost based on staff survey results.

Staff determined costs for rule implementation will be based on the use of reformulated adhesive products rather than the use of add-on control equipment. This determination is based on the current level of complying adhesive product availability.

A recent survey of cost of reformulated adhesives indicates a slight savings to no change in cost. Cost savings were found for ceramic tile and subfloor adhesive categories, while there was no change in cost for the cove base adhesive category. For other adhesive categories, only complying adhesives are currently offered for sale in Ventura County. On this basis, there is no net cost for implementing the proposed adhesive standards for these categories. The availability, feasibility, and cost-effectiveness of the proposed new ROC adhesive standards make this proposal worthwhile.

Incremental Cost-Effectiveness Analysis

Health and Safety Code Section 40920.6(a) requires districts to identify one or more potential control options, assess the cost-effectiveness of those options, and calculate the incremental cost-effectiveness. Health and Safety Code Section 40920.6 also requires an assessment of the incremental cost-effectiveness for proposed regulations relative to ozone, CO, SOx, NOx, and their precursors.

Incremental cost-effectiveness is defined as the difference in control costs divided by the difference in emission reductions between two potential control options achieving the same emission reduction goal of a regulation. The proposed amendments require the most stringent viable ROC limits with no other viable control option that can achieve the same amount of emission reductions. Therefore, the incremental cost-effectiveness analysis does not apply to this rulemaking.

Socioeconomic Analysis

Assembly Bill 2061 (Polanco), effective January 1, 1992, requires the District Board consider the socioeconomic impacts of any new rule. The Board must evaluate the following socioeconomic information on proposed amendments to Rule 74.20.

(1) *The type of industries or businesses, including small business, affected by the rule or regulation.*

The adoption of amendments to Rule 74.20 will directly affect the sixteen permitted and a number of nonpermitted adhesive operations in the county (see Table 2).

(2) *The impact of the rule amendments on employment and the economy of the region.*

Revisions to Rule 74.20 are not expected to have a negative impact on either employment or the economy of Ventura County. According to the cost analysis of the proposed revisions to Rule 74.20, some segments of the construction industry may benefit from reduced material costs, which should help economic growth.

(3) *The range of probable costs, including costs to industry or business, including small business, of the rule or regulation.*

Probable savings will range from $0.53 per pound of ROC reduced to zero cost.

(4) *The availability and cost-effectiveness of alternatives to the rule or regulation being proposed or amended.*

The District could have proposed the future ROC limits from SCAQMD Rule 1168 for plastic pipe welding adhesives. However, these adhesives have yet to be formulated, which would make this a technology-forcing alternative.

(5) *The emission reduction potential of the rule or regulation.*

The anticipated emission reduction potential of the proposed rule amendments is about 8 tons per year of ROC emissions. This is the result of 22 tons per year emission reduction from the proposed new adhesive standards minus the 14 tons per year lost from the relaxation of the aerosol adhesive standard.

(6) *The necessity of adopting, amending, or repealing the rule or regulation in order to attain state and federal ambient air standards pursuant to Chapter 10 (commencing with Section 40910).*

Ventura County is classified as a severe nonattainment area for both federal and California Ambient Air Quality Standards for ozone. These proposed rule amendments will reduce ROC emissions that are precursors to the formation of ozone. According to the 1995 AQMP, these emission reductions will help the District in its effort to attain the standards.

ENVIRONMENTAL IMPACTS OF METHODS OF COMPLIANCE/CEQA

California Public Resources Code Section 21159 requires the District to perform an environmental analysis of the reasonably foreseeable methods of compliance. The analysis must include the following information on proposed revisions to Rule 74.20:

(1) An analysis of the reasonably foreseeable environmental impacts of the methods of compliance.
(2) An analysis of the reasonably foreseeable mitigation measures.
(3) An analysis of the reasonably foreseeable alternative means of compliance with the rule or regulation.

Table 6 lists all reasonably foreseeable compliance methods, the environmental impacts of those methods, and measures that could be used to mitigate the environmental impacts.

Table 6
Environmental Impacts and Mitigations of Methods of Compliance

Compliance Methods (including all reasonably foreseeable alternative means of compliance)	Reasonably Foreseeable Environmental Impacts	Reasonably Foreseeable Mitigation Measures
Reformulation of adhesives	Air Quality Impacts: Reformulation may result in the use of toxic materials.	Operators may use reformulated products with less or no toxic materials.
	Water Impacts: Improper disposal of cleaning solvents may cause water impacts	Compliance with wastewater discharge standards and waste disposal requirements will mitigate these impacts.
	Human Health Impacts: Cleaning solvents may be replaced with products containing more toxic compounds.	Compliance with OSHA safety guidelines (e.g., personal protective equipment, prevention and response, emergency first aid procedures) reduces these impacts.
Installation of Catalytic Oxidation Add-On Controls	Solid Waste Disposal Impacts: May increase quantities of solid waste (catalyst material).	Catalyst materials are valuable and are typically reclaimed and recycled.
	Noise Impacts: Fans and associated equipment with add-on controls may increase noise levels.	Sound wall or enclosures may be constructed around the control equipment.

This analysis demonstrates the adoption of revisions to Rule 74.20 will not have a significant effect on the environment due to unusual circumstances. The amendments overall reduce emissions by an estimate of 8 ton per year of ROC, and are thus categorically exempt from CEQA under Section 15307 and 15308 of the state CEQA Guidelines.

REFERENCES

ATTACHMENT 3

1. "Adhesive, Caulks and Home Repairs," www.liquidnails.com.

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DISCLAIMER

This report contains references to company and product names to illustrate product availability. Mention of these names is not to be considered an endorsement by the Ventura County Air Pollution Control District.

ATTACHMENT 3