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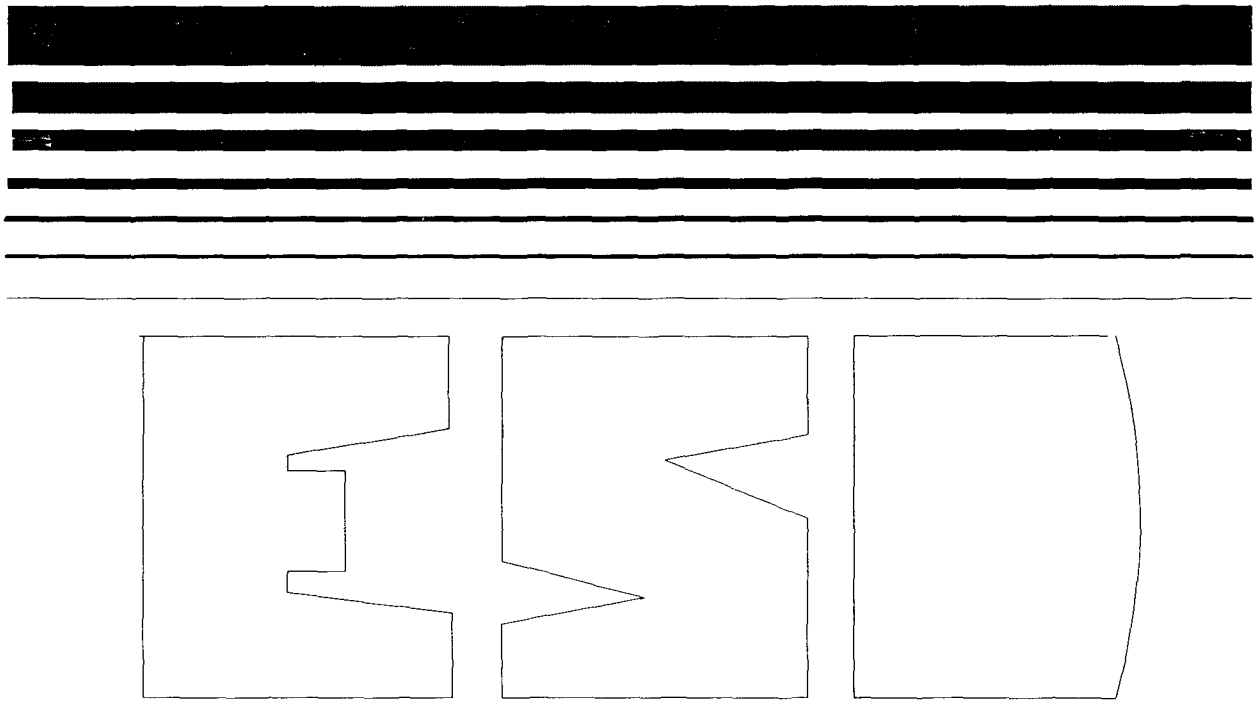
# Volatile Organic Compound Emissions from Automobile Refinishing -- Background Information for Promulgated Standards



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# Volatile Organic Compound Emissions from Automobile Refinishing -- Background Information for Promulgated Standards

Emissions Standards Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711
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TABLE 1-1. LIST OF COMMENTERS ON PROPOSED NATIONAL EMISSION STANDARDS FOR AUTOMOBILE REFINISH COATINGS

| Docket number[a] | Commenter and affiliation |
|---|---|
| IV-D-01 | Dr. K.E. Hine<br>Director of Safety, Health, and Environmental Affairs<br>ICI Paints<br>Westlake, Ohio |
| IV-D-02 | H. Hieb<br>Spokesman<br>Central Coast Independent Autobody Coalition<br>Santa Maria, California |
| IV-D-03 | R.T. Winstead<br>Roxboro, North Carolina |
| IV-D-04 | L. Simpson, V. Pratt, and K. Kerr<br>Florida International University Student Body |
| IV-D-05 | B.M. Richards<br>Manager, Automotive Refinishing Coatings R&D<br>BASF Corporation<br>Whitehouse, Ohio |
| IV-D-06 | M.S. Kruzer<br>Manager, Regulatory Affairs<br>The Sherwin-Williams Company<br>Cleveland, Ohio |
| IV-D-07 | J.A. Hackney<br>Technical Services & Environmental Regulatory Affairs<br>American Standox, Inc.<br>Plymouth, Michigan |
| IV-D-08 | D.L. Stein<br>Senior Product Responsibility Specialist<br>3M Company<br>Saint Paul, Minnesota |
| IV-D-09 | B. Mathur<br>Chief, Bureau of Air<br>State of Illinois Environmental Protection Agency<br>Springfield, Illinois |

TABLE 1-1. LIST OF COMMENTERS ON PROPOSED NATIONAL EMISSION STANDARDS FOR AUTOMOBILE REFINISH COATINGS (CONTINUED)

| Docket number[a] | Commenter and affiliation |
|---|---|
| IV-D-10 | B.A. Kwetz<br>Director, Division of Air Quality Control<br>Commonwealth of Massachusetts<br>Department of Environmental Protection<br>Boston, Massachusetts |
| IV-D-11 | L. Cole<br>Executive Vice President and General Manager<br>Surface Protection Industries, Inc.<br>Los Angeles, California |
| IV-D-12 | D. Stringham<br>Director, Regulatory and State Government Affairs<br>Safety-Kleen<br>Elgin, Illinois |
| IV-D-13 | K. Schultz<br>Environmental Consultant<br>Dupont Automotive<br>Wilmington, Delaware |
| IV-D-14 | J. Sell<br>Senior Counsel<br>National Paint & Coatings Association<br>Washington, DC |
| IV-D-15 | B. Adler<br>Adler's Antique Autos, Inc.<br>Stephentown, New York |
| IV-D-16 | Automotive Services Association<br>Bedford, Texas |
| IV-D-17 | D.I. Greenhaus<br>Director, Environment, Health and Safety<br>National Automobile Dealers Association<br>McLean, Virginia |
| IV-F-01 | Michael Callahan<br>Safety-Kleen Corporation<br>Chicago, Illinois |
| IV-F-01 | Howard Berman<br>The Jefferson Group |

TABLE 1-1. LIST OF COMMENTERS ON PROPOSED NATIONAL EMISSION STANDARDS FOR AUTOMOBILE REFINISH COATINGS (CONTINUED)

| Docket number[a] | Commenter and affiliation |
|---|---|
| VI-B-01 | K. Schultz<br>Environmental Consultant<br>Dupont Automotive<br>Wilmington, Delaware |
| VI-B-02 | Herb Morrison<br>BASF Corporation<br>Whitehouse, Ohio |
| VI-B-03 | Bernard Zysman<br>Technical Services Specialist<br>Occidental Chemical Corporation<br>Niagara Falls, New York |
| VI-B-04 | Ronald Walton<br>Clariant Corporation<br>Charlotte, North Carolina |
| VI-B-05 | James Kantola<br>Safety, Health & Environmental Manager<br>ICI Paints<br>Westlake, Ohio |
| VI-B-06 | Douglas Greenhaus<br>Director, Environment, Health & Safety<br>National Automobile Dealers Association<br>McLean, Virginia |
| VI-B-07 | Jim Sell<br>Senior Counsel<br>National Paint & Coatings Association<br>Washington, DC |
| VI-B-09 | B. Mathur<br>Chief, Bureau of Air<br>State of Illinois Environmental Protection Agency<br>Springfield, Illinois |

a The docket number for this rule is A-95-18. Category IV-D includes public comments on the April 30, 1996, proposed rule; Category IV-F includes comments made at the public hearing; Category VI-B includes comments on the December 30, 1997, supplemental proposed rule.

# 2.0 SUMMARY OF PUBLIC COMMENTS

The EPA received a total of 26 comment letters on the proposed standards and the technical support document for the proposed standards. The EPA also received comments during the public hearing for this rule. This document contains summaries and responses to comments mainly concerning the provisions of the proposed automobile refinish coatings rule. However, at the time of proposal of the rule, the EPA specifically requested comment on certain topics concerning section 183(e) of the Clean Air Act (Act) in general. Therefore, those comments and responses are discussed in this document as well. In order to avoid duplication, most comments that pertain to the EPA's study, Report to Congress, and schedule for regulations under section 183(e) of the Act are discussed in a separate comment response document, Response to Comments on Section 183(e) Study and Report to Congress (EPA-453/R-98-007) also referred to as the 183-BID.

The comments have been categorized under the following topics:

Section 183(e) Requirements
Applicability
Definitions
Standards
Compliance Requirements
Labeling Requirements
Reporting Requirements
Variances
Test Methods
Cost Impacts
Miscellaneous

## 2.1 LEGISLATIVE AUTHORITY

Comment: Several commenters (IV-D-09, IV-D-10, IV-D-14) responded to the EPA's request for comments on the use of control techniques guidelines (CTG) to address automobile refinish coatings. These commenters support a national rule instead of CTG-based State rules. One commenter (IV-D-09) stated a CTG-based approach would complicate rule development and enforcement

because States could adopt different rules. One commenter (IV-D-14) stated that in light of the national distribution system of refinish coatings, the large number of diverse coatings used by the industry, and the need to avoid differing and potentially conflicting State regulations that would disrupt the orderly interstate movement of coatings, a national rule approach is appropriate for automobile refinish coatings. Another commenter (IV-D-09) stated that a national rule will reduce VOC emissions in ozone attainment areas that, because of pollutant transport, contribute to ozone formation in nonattainment areas.

Response: The EPA has concluded that a national rule is the more effective approach for reducing emissions from consumer products, automobile refinish coatings, and architectural coatings. First, the EPA believes that a national rule is an appropriate means to deal with the issue of products that are, by their nature, easily transported across area boundaries and typically are widely distributed and are used by widely varied types of end-users. For many such products, the end-user may use them in different locations from day-to-day. Because the products themselves are easily transportable, a national rule would preempt opportunities for end-users to purchase such consumer and commercial products in attainment areas and then use them in nonattainment areas, thereby circumventing the regulations and undermining the intended decrease in VOC emissions. The EPA, therefore, believes that a national rule with applicability to products regardless of where they are marketed is a reasonable means to ensure that the regulations result in the requisite degree of VOC emission reduction.

Second, the EPA believes that rules applicable only in nonattainment areas would be unnecessarily complex and burdensome for the regulated entities to comply with and for the Agency to administer. The potentially regulated entities under section 183(e) of the Act are the manufacturers, processors, wholesale distributors, or importers of consumer and commercial products. Any regulations that would differentiate between

products destined for attainment and nonattainment areas would require that regulated entities have sufficient ability to track their products and control their distribution, sale, and ultimate use to ensure that only compliant products go to nonattainment areas. Although the EPA recognizes that some product lines in some product categories may only be distributed regionally in areas that are already in attainment, the large majority of the product lines will be distributed nationally. Regulations targeted only at nonattainment areas could thus impose significant additional burdens upon regulated entities to achieve the goals of section 183(e) of the Act.

By comparison, existing State regulations in some instances apply to a broader range of entities, including retail distributors and end users. Given the limitations of section 183(e) of the Act as to regulated entities, the EPA believes that regulations applicable to both attainment areas and nonattainment areas are a reasonable means to ensure use of complying products where necessary, while avoiding potentially burdensome impacts and less reliable mechanisms to achieve the goals of section 183(e). Several of the trade associations of the industries for whom the EPA has proposed national rules (i.e., architectural coatings, consumer products, and automobile refinish coatings) have supported national rules that apply to all areas as the most efficient regulatory mechanism from the perspective of marketing and distribution of products. The EPA's consideration of this factor, however, is not meant to imply that it would be inappropriate for States to develop more stringent levels of controls where necessary to attain the ozone standard. Instead, the national standard is expected to reduce the number of States needing to develop separate rules for these categories.

Third, the EPA believes that national rules with nationwide applicability may help to mitigate the impact of ozone and ozone precursor transport across some area boundaries. Recent modeling performed by OTAG and others suggests that in some circumstances VOCs emitted outside nonattainment area boundaries can contribute

to ozone pollution in nonattainment areas, e.g., by traveling relatively short distances into neighboring nonattainment areas. The EPA has recognized the potential for VOC transport in the December 29, 1997, Guidance for Implementing the 1-hour Ozone and Pre-Existing $PM_{10}$ NAAQS concerning credit for VOC emission reductions towards rate of progress requirements. The guidance indicates that the EPA may give credit for VOC reductions within 100 kilometers of nonattainment areas. In addition, the June 1997 recommendations made by OTAG supported the EPA's use of VOC regulations that apply to both nonattainment and attainment areas to implement section 183(e) of the Act for certain products. The particular product categories OTAG cited for national VOC regulations are automobile refinishing coatings, consumer products, and architectural coatings. The EPA believes that regulation of products in attainment areas is necessary to mitigate VOC emissions that have the potential to contribute to ozone nonattainment in accordance with section 183(e) of the Act.

Finally, the arguments in this section supporting the EPA's authority and rationale for regulating both nonattainment and attainment areas under section 183(e) of the Act are not intended to imply that the EPA would not consider using its discretion to develop a CTG (which would affect VOC emissions only in nonattainment areas) for a category in lieu of a regulation. The EPA recognizes that patterns of distribution and use will vary among categories of products. Therefore, the EPA intends to use its discretion to determine the most efficient and effective mode of regulation for each of the categories listed for regulation under section 183(e) of the Act.

## 2.2 PROPOSED STANDARDS

### 2.2.1 Applicability

Comment: Several commenters (IV-D-02, IV-D-03, IV-D-06, IV-D-13, IV-D-14, IV-D-15) claimed that lacquer topcoats should be exempt from the rule because they account for only 5-10% of coating usage, and their use is decreasing because automobile manufacturers use other coating types on new automobiles. These

commenters indicated that lacquers are used mainly by hobbyists who wish to restore vehicles to their original condition, including the paint finish. One commenter (IV-D-13) stated that the use of lacquers to refinish modern vehicles is untenable because of inferior durability and aesthetics. Another commenter (IV-D-09) suggested that the EPA should classify lacquer coatings as specialty coatings and consider limiting their production, since an exemption for lacquers would create inconsistencies between the national rule and State rules that do not exempt them. The commenter stated that limiting lacquer production would aid in the compliance with State rules.

Response: The EPA has determined that it is appropriate to exempt lacquer topcoats from the final rule. The EPA agrees lacquer topcoats are less desirable than other coating types for refinishing modern automobiles, and that their use is therefore not likely to increase since they are not used on new automobiles. Lacquers are not as durable as other coatings. Since they dry by solvent evaporation alone (rather than through chemical crosslinking), they are not resistant to solvent attack. Although other coatings generally can be used to refinish antique and classic automobiles, the finish would not be the "original" finish desired by users in this niche of automobile refinishing. The EPA exempted lacquer topcoats from the final rule because their use is decreasing, their contribution to the total VOC emissions is small, they fill a niche in the automobile refinish industry, and they cannot be reformulated to meet the VOC content limit for topcoats.

Including lacquer topcoats in a specialty coating category and limiting their production, as suggested by one commenter, does not appear to be a viable option. First, production limits set significantly below current usage levels would cause shortages of lacquer topcoats. Such shortages would restrict consumer access to the product. Second, production limits set at or near current usage levels would be equivalent to an exemption, since lacquer topcoat usage is not likely to increase. The

additional recordkeeping necessary to make a production limit enforceable would be burdensome on both regulated entities and the EPA. For these reasons, the EPA decided against the creation of a specialty category with limits on production for lacquer topcoats.

One commenter noted that an exemption would lead to an inconsistency between State and federal rules for this coating type. The EPA acknowledges that an exemption for lacquer topcoats under the national rule may make the rule less stringent than some State rules, but the EPA notes that States may still choose to be more stringent than the national rule by the inclusion of such coatings in their own rules.

Comment: One commenter (IV-D-01) disagreed with the EPA's statement that the distribution of coatings has no effect on whether compliant coatings are used. The commenter stated that distributors may bring noncompliant products into the United States via Mexico or Canada without a manufacturer's knowledge.

Response: The example given by the commenter appears to be one of importation rather than distribution. Both the proposed and final rule apply to importers of automobile refinish coatings and coating components and thus require importers to ensure that their recommended use of coatings or coating components for automobile refinishing would be compliant.

Comment: Several commenters (IV-D-01, IV-D-05, IV-D-06, IV-D-07, IV-D-09, IV-D-10, IV-D-13, IV-D-14) supported including manufacturers and importers of automobile refinish coating components, such as thinners and hardeners, as regulated entities. The commenters stated that excluding coating component manufacturers and importers would likely result in the use of coatings with VOC levels higher than the proposed standards, since these components would not be required to be part of a compliant coating system under the proposed rule.

Response: The EPA agrees with the concern raised by these commenters. Regulated entities under the April 30, 1996, proposed rule included only manufacturers and importers of

complete automobile refinish coatings. The VOC content of an automobile refinish coating depends, however, on the VOC content levels of all components that make up the coating. Coating users sometimes combine components made by multiple manufacturers when preparing a coating. Since components themselves are not coatings, a manufacturer who produces only hardeners, for example, would not have been subject to the April 1996 proposed rule. Such a manufacturer could recommend that its hardener be combined with components of other manufacturers, possibly resulting in a coating that exceeds the VOC content standards of the rule. Such a situation could essentially undermine the VOC emission reductions of the rule.

To address the concern raised by these commenters, the EPA proposed in a supplemental notice (December 30, 1997, 62 FR 67784) to include as regulated entities all manufacturers and importers of automobile refinish coatings or coating components. The EPA also proposed a mechanism for determining compliance with the rule for coatings consisting of components made or imported by multiple entities. Under this approach, manufacturers and importers of coatings or coating components must comply with the VOC content limits for complete coatings by calculating the VOC content of coatings that result from the use of their components in accordance with their recommendations.

Determining compliance for coatings consisting of components made or imported by one regulated entity is relatively easy. In general, compliance would be determined by "spot checking," where the EPA (or the regulated entity, if requested by the EPA) would obtain coating components, mix the components in the ratios recommended by the regulated entity (on the containers or in any product literature), and analyze the resulting coating using Method 24. The EPA considered requiring regulated entities to perform VOC testing of their coatings on a regular basis (e.g., every nth batch) to demonstrate compliance with the rule, but believes that such a requirement would be economically burdensome. The EPA believes that random spot checks will be

adequate to encourage regulated entities to assure that all of their coating batches are compliant.

Determining the compliance of coatings that consist of components made or imported by multiple regulated entities is more difficult. The EPA considered several options for determining compliance in these cases. The EPA considered requiring regulated entities (that recommend the use of their components with those of other regulated entities) to use Method 24 to test the coatings resulting from their recommendations. Using this information, the entities could establish the maximum allowable VOC content of their components, and the EPA would spot check components to determine compliance. However, the EPA currently has no method for determining the VOC content of individual components. Also, the VOC content of a coating is not simply the sum of the VOC contents its components, so component VOC content is not necessarily an indicator of the VOC content of the overall coating. Therefore, the EPA believes it is technically infeasible to determine compliance using component VOC content information.

Because of the technical infeasibility of the approach described above, the EPA has concluded that the responsibility for coatings should be based on product recommendations. In other words, if an entity recommends a combination of components (made or imported by one or more regulated entities), then that entity is responsible for the compliance of the resulting coating. There may be cases where a coating resulting from an entity's recommendation is noncompliant because of the components of other regulated entities. Since this occurrence may be beyond the control of the recommending entity, the Agency determined that it would be appropriate to provide regulated entities with a means to establish their compliance with the rule, and the Agency solicited comments on such a mechanism. In this event, the final rule provides regulated entities the opportunity to submit new or existing Method 24 test data demonstrating the compliance of the coating resulting from their recommendation. This option is

technically feasible, and is appropriate since compliance is determined in essentially the same way for all regulated entities.

It is important to note that regulated entities would be liable only for the VOC content of the coatings that result from their recommendations. For example, if a regulated entity recommends that three of its coating components be combined and used in automobile refinishing, it is responsible for the coating that results from that combination. If a regulated entity recommends the substitution of one of its components for that of another regulated entity, the former entity is responsible for the resulting coating. A regulated entity is not responsible for coatings resulting from the recommendations of others, even if such recommendations involve the use of components of that regulated entity.

Comment: One commenter (VI-B-04) requested clarification of the term "component." The commenter questioned whether raw materials, such as dry pigments, are considered to be components, and whether raw material manufacturers and importers would be regulated entities under the rule.

Response: The EPA did not intend to include raw material manufacturers or importers as regulated entities. Although some raw materials may affect the VOC content of coating components, the VOC content of a coating is determined by the manufacturer that uses raw materials in the production of coating components supplied to distributors for sale and application by end-users. The EPA intends to regulate automobile refinish coating component manufacturers and importers that market such components to distributors and end-users in the automobile refinish industry. Raw material suppliers do not make recommendations to end-users of coatings, but make recommendations to manufacturers of coating components regarding the possible use of raw materials in the production of such components. The EPA has included in the final rule a definition for automobile refinish coating component that excludes raw materials.

Comment: Several commenters (IV-D-06, IV-D-07, VI-B-01, VI-B-02, VI-B-05, VI-B-06, VI-B-07) supported exempting touch-up coatings from the rule. Some of these commenters stated such coatings are sold in small containers, applied by brush, and used routinely for minor scratches or nicks that do not require more extensive repair. One commenter (VI-B-07) stated that the definition of touch-up coatings should not include an upper limit on container size. The commenter stated that such a limit would impose an artificial restriction on the selection of the most economical container size, and would serve no purpose.

Response: Touch-up coatings differ from typical refinish topcoats in that they are typically used by automobile owners to repair minor scratches or nicks, require no mixing prior to application, and are sold in small containers. Most touch-up coatings are lacquers, which are exempt from the final rule. Since touch-up coatings are an insignificant emissions source, the EPA is exempting them in the final rule. The definition of touch-up coatings in the final rule states that such coatings are applied by brush, air-brush, or non-refillable aerosol can to cover minor surface damage. This definition is very similar to that included in the South Coast Air Quality Management District Rule 1151. The EPA has no information indicating that touch-up coatings are packaged in containers larger than eight ounces. However, since the definition of such coatings states that they are applied by brush, air-brush, or nonrefillable aerosol spray can, it is unlikely that this coating category can be abused even without a limit on container size. Therefore, the definition of touch-up coatings in the final rule does not contain a limit on container size.

Comment: Several commenters (IV-D-06, IV-D-07, IV-D-13, IV-D-14) recommended exempting coatings used at training facilities from the rule. The commenters stated such facilities are used to train international coatings users, some of whom use coatings that do not meet the VOC content standards of the proposed rule.

Response: Most international coating users trained in the United States are from Mexico or Canada. The EPA has no information indicating that coatings compliant with the national rule cannot be used to train such users. Training for Canadian users probably should be done with coatings compliant with the national rule, since Canada is currently developing a similar rule. The EPA is not exempting coatings or coating components used at training facilities in the final rule.

Comment: One commenter (IV-D-07) requested clarification of applicability of the rule to coatings that are imported into the United States and then exported to another country.

Response: The EPA did not consider in the proposed rule the scenario described by the commenter. Coatings manufactured in this country for export were exempted because section 183(e) of the Act contemplates regulation of products for sale or distribution in the United States. The EPA does not consider it necessary to regulate the VOC content of coatings that are brought into the United States and subsequently shipped outside of the United States. Therefore, the final rule includes an exemption for coatings and coating components that are manufactured in or outside the United States for sale or distribution outside the United States.

Comment: One commenter (IV-D-13) questioned whether the rule would apply only in the 48 contiguous states, or include the District of Columbia, Alaska, Hawaii, Puerto Rico, Virgin Islands, Guam, and American Samoa.

Response: All States and territories are covered by the Act. Accordingly, this rule applies to the United States of America, including the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and Commonwealth of the Northern Mariana Islands.

Comment: One commenter (IV-D-13) stated that the term "automobile refinish coating" needs to be more fully defined. Specifically, the commenter questioned whether a coating having the phrase "automotive finishes" in its brand name would be

considered an automobile refinish coating if no suggestion is made on the label or in any product literature that the coating be used for automobile refinishing.

Response: The final rule applies to automobile refinish coating and coating component manufacturers and importers. The final rule requires that coatings resulting from recommendations for automobile refinish use made by manufacturers and importers must comply with the VOC content limits of the rule. In some product literature, the trade or brand name is the only indication that a product is intended for automobile refinishing. If the reference to automobile refinishing were allowed in the trade or brand name of coatings that exceed the VOC content standards, then noncompliant coatings could continue to be used for automobile refinishing. The following definition was added in the final rule for clarification:

> automobile refinish coating component means any portion of a coating, such as a reducer or thinner, hardener, additive, etc., recommended (by its manufacturer or importer) to distributors or end-users for automobile refinishing. The raw materials used to produce the components that are mixed by the end-user to prepare a coating for application are not considered automobile refinish coating components. Any reference to automobile refinishing made by a manufacturer or importer on a container or in product literature constitutes a recommendation for automobile refinishing.

Comment: One commenter (IV-D-02) questioned the exemption for original equipment coating manufacturers. The commenter stated: "autobody shops are not exempt, so why should coating manufacturers and assembly line operations be exempt?"

Response: Coatings used by automobile manufacturers are different from automobile refinish coatings. Separate regulations address the automobile industry, including New Source Performance Standards (40 CFR, Subpart MM), and requirements for some new or modified sources to install Best Available Control Technology (ozone attainment areas) or achieve the Lowest Achievable Emission Rate (LAER) (ozone nonattainment areas). Also, a source category for regulation under section 112(d) of the Act includes auto and light duty truck surface coating. In

short, these types of automobile finishing operations are regulated by other means to achieve emissions reductions.

Comment: One commenter (IV-D-06) stated that the definition of "assembly line coating operations" was too restrictive because it does not include situations where original coating finishes are applied without having the vehicle conveyed along a moving belt or track. The commenter stated that in the custom van market an original finish is applied without using a moving belt or track.

Response: In the proposed rule there was an exemption for coatings that are manufactured for use by original equipment manufacturers for assembly line coating operations. Since the meaning of this exemption is not changed by removing the reference to assembly line coating operations, this language has been removed in the final rule. The exemption from the final rule is for coatings manufactured or imported for use by original equipment manufacturers. Since van customizers apply coatings to a vehicle that already has an original finish applied by the van manufacturer, coating application during van customization is considered automobile refinishing.

Comment: One commenter (IV-D-13) stated that additives should be exempt from the rule because there is no good mechanism available to additive manufacturers to guarantee compliant coatings when the end user uses additives. The commenter stated when additives are used, only about 1 to 2 ounces per ready-to-spray gallon are added. The commenter stated since the input of additives on VOC is minimal, they should be exempt.

Response: For the purposes of the national rule, additives are considered to be coating components. The VOC content limits of the rule are for coatings prepared according to their mixing instructions, including all components. As coating component manufacturers or importers, additive manufacturers or importers would only be potentially out of compliance if their recommendation for use resulted in coatings that are noncompliant.

2.2.2 Definitions

Comment: Several commenters (IV-D-01, IV-D-06, IV-D-07, IV-D-13, IV-D-14 ) recommended the definition of specialty coatings be revised to include the phrase "including but not limited to." The commenters stated that such an open-ended definition would allow refinish coating manufacturers to continue to produce new coatings compatible with new substrates and coatings of original equipment manufacturers (OEM). Several of the commenters stated that abuse of an open-ended definition is not likely because the VOC limits of the rule are reasonable, giving coating users no reason to use specialty coatings for purposes other than their intended use.

Response: The EPA agrees that an open-ended definition for specialty coatings would allow refinish coating manufacturers and importers to produce (import) coatings compatible with new OEM substrates and coatings; however, the EPA believes such a definition could lead to abuse. Even with reasonable VOC limits, an incentive to abuse an open-ended specialty coating definition exists because noncompliant primers and topcoats could continue to be used if they are recommended for a special purpose.

The rule allows coating manufacturers and importers to apply for a variance if, for technical or economic reasons, they cannot comply with the requirements of the rule. Such variances may be obtained for new coatings that do not comply with the VOC content standards. Variances are discussed more in section 2.2.7. An open-ended definition of specialty coatings is not included in the final rule.

Comment: Several commenters (IV-D-06, IV-D-13, IV-D-14) stated the definition of specialty coatings should be revised to include "cut-in" clearcoats or "jambing" clearcoats. The commenters stated this coating is necessary for clearcoating door jambs and other areas of automobiles where heavy contours, seams, or protrusions make sanding, buffing, and polishing infeasible. The commenters stated that the use of standard clearcoats is not practical for these areas because they dry slower, have higher

film builds, and impact the gloss and texture of other areas (due to overspray effects caused by the unique surface configurations). Another commenter (IV-D-08) recommended the addition of water hold-out coatings as a specialty coating, and suggested the following definition from Rule 1151 of the South Coast Air Quality Management District (SCAQMD):

> A water hold-out coating is a coating applied to the interior cavity areas of doors, quarter panels and rocker panels for the purpose of corrosion resistance to prolonged water exposure.

Response: The final rule includes cut-in, or jambing, clearcoats as specialty coatings. Since jambing clearcoats are ready-to-spray, they are defined as ready-to-spray clearcoats applied to surfaces such as door jambs and trunk and hood edges.

Water hold-out coatings are used as rust preventers, and are applied by aerosol spray or application wand to specific areas that are difficult to reach. Water hold-out coatings are included in the specialty coating category of the final rule, and the definition used in SCAQMD Rule 1151 is used in the rule.

Comment: One commenter (IV-D-13) recommended either the inclusion of low-gloss coatings in the specialty coating category, or the revision of the current definition of anti-glare/safety coatings to reflect that such coatings are low-gloss and not "no" gloss.

Response: The EPA agrees with the commenter. In a December 30, 1997, supplemental proposal, the EPA proposed to replace anti-glare/safety coatings with low-gloss coatings, defined as topcoats with specular gloss values of 25 or less with a 60° gloss meter. The EPA proposed that ASTM Test Method D 523-89 be used for the determination of specular gloss of coatings. This method is used by industry for this purpose. The EPA has included the definition of "low-gloss coatings" and the above-mentioned test method in the final rule.

Comment: One commenter (VI-B-01) stated that the EPA's proposed use of ASTM Method 0523-89 to determine the specular gloss of coatings is appropriate and has been used by the

industry for a long time. The commenter supports the proposed specular gloss value of 25 (on a 60° gloss meter) for defining which coatings have low gloss. Another commenter (VI-B-07) stated that the specular gloss value for defining low-gloss coatings should be 50 (on a 60° gloss meter). The commenter stated that at this value coatings are at best semi-gloss in appearance; therefore, the higher value would not result in cheating by allowing the use of high-VOC coatings for an unintended purpose.

Response: The EPA has included the proposed specular gloss value of 25 (on a 60° gloss meter) in the final rule to define low-gloss coatings. Several State rules use this gloss value, and the EPA assumes that coatings with gloss values higher than 25 are able to comply with those rules. The EPA therefore believes that such coatings can comply with the final rule.

Comment: One commenter (IV-D-08) recommended the name "rubberized asphaltic underbody coatings" be changed to "underbody coatings" because not all underbody coatings are based on rubberized asphalt.

Response: The EPA agrees, and the final rule includes a definition for underbody coatings.

2.2.3 Standards

Comment: One commenter (VI-B-03) stated that the VOC content limits of the proposed rule do not represent "best available controls" because more stringent requirements in some State rules have been proven to be technologically and economically feasible. The commenter stated that some of the coatings formulated to meet these more stringent requirements contain solvents, such as parachlorobenzotrifluoride (PCBTF), that are not VOC's.

Response: The EPA agrees that some States have developed rules with lower VOC content limits than those in the proposed national rule. Although some States may have such rules, the EPA is required by section 183(e) of the Act to set limits that take into account a variety of factors. The EPA believes that the

final rule represents best available controls (BAC). The Act defines "best available controls" as "the degree of emissions reduction that the Administrator determines on the basis of technological and economic feasibility, health, and energy impacts, is achievable." The statute thus explicitly authorizes the EPA to take into consideration various factors and to exercise its discretion to choose achievable VOC content limits. In developing the rule, the EPA considered many factors in evaluating the economic and technological feasibility of different VOC content levels. These factors included:

- Limits in State/local regulations
- VOC content and sales information
- Performance considerations
- Cost considerations
- Market impacts

The sources of information for these factors included:

- Pre-proposal letters
- Public comments on the proposed rule
- Follow-up discussions with commenters to gather additional technical information
- EPA expertise

Considering all these factors, the EPA concluded that the VOC content limits in table 1 of the rule represent BAC for automobile refinish coatings. In evaluating the degree of emission reduction that represents BAC, the EPA took into consideration that these requirements would apply to all areas of the country and to all manufacturers and importers of automobile refinish coatings and coating components within a specific time frame (i.e., 4 months after promulgation). The EPA's process for developing BAC was described in the proposal preamble (61 FR 19005).

Comment: Several commenters (IV-D-06, IV-D-07, IV-D-13, IV-D-14) stated that production of specialty coatings should not be limited. One commenter (IV-D-06) stated that monitoring the amount of specialty coatings would be cumbersome and difficult to accomplish accurately, since some specialty coatings are prepared by the mixing ordinary primers, topcoats, etc., with components

that give the coating the special desired properties. Another commenter (IV-D-07) stated limiting production of specialty coatings would impair the coating manufacturers' ability to meet the growing demand for coatings to refinish plastic parts. Another commenter (IV-D-14) stated production of specialty coatings should not be limited because it is a significant portion of some companies' production. One commenter (IV-D-10) stated that the EPA should not limit production of specialty coatings in the rule because abuse of the category may not occur; they suggested limiting production in the future if evidence of abuse is discovered.

Response: In the preamble to the proposed rule, the EPA discussed the difficulties associated with specialty coating production limits. Since some specialty coatings are just modifications of other coatings, it is unclear what should be limited. Also, production limits would adversely affect manufacturers and importers that produce primarily specialty coatings. Several commenters reiterated these concerns, but no comments were received suggesting production limits or how such limits could be determined or enforced practically. Therefore, the final rule does not include production limits for specialty coatings.

Comment: Several commenters (IV-D-05, IV-D-06, IV-D-07, IV-D-13, IV-D-14) recommended clarification of a provision dealing with coatings having multiple uses. One commenter (IV-D-06) stated that a topcoat modified for a specific purpose, thus making it a specialty coating, can be interpreted to be noncompliant under the current provision if it does not meet the topcoat limit, which is the lowest applicable VOC content standard.

Response: To avoid confusion, the EPA has removed the provision mentioned by the commenters. The EPA's intent in the proposed provision was to clarify that if the same combination and mixing ratio of coating components were recommended for use in more than one coating category, then the lowest VOC content

standard would apply. Different combinations and/or mixing ratios of coating components are considered different coatings. The modified topcoat described by a commenter is not considered a topcoat if it meets the definition of a specialty coating; therefore, it would not be required to meet the topcoat VOC content standard. A provision has been added to the final rule (§ 59.102(b)) for clarification.

Comment: Several commenters (IV-D-05, IV-D-06, IV-D-07, IV-D-13, IV-D-14) suggested the use of English units for VOC content, because they claim that this is the industry standard.

Response: The EPA agrees that information in English units would be helpful, and English units have been included in the final rule. The English units are provided for information only. Compliance will be determined based on the VOC content limit, as expressed in metric units.

Comment: Several commenters (IV-D-05, IV-D-06, IV-D-07, IV-D-10, IV-D-14) supported the VOC content limit proposed for primers and primer surfacers. The commenters stated that the proposed limit is necessary to maintain productivity within the refinish industry for all ambient conditions, and will enable the use of tintable primers that assist in color matching, resulting in lower VOC emissions because less topcoat is necessary to achieve the desired color. One commenter (IV-D-07) stated that since primer sealers are also tintable, they should have the same VOC content standard as primers and primer surfacers.

Response: The EPA has adopted the VOC content limit proposed for primers and primer surfacers in the final rule. The EPA does not agree that primer sealers require the same VOC limit as primers and primer surfacers; information available to the EPA indicates there are tintable primer sealers capable of complying with the VOC content standard in the proposed rule.

Comment: Several commenters (IV-D-05, IV-D-13, IV-D-14) encouraged the inclusion of a separate category, and a VOC content standard of 5.5 pounds of VOC per gallon of coating, for precoat primers. One commenter (IV-D-14) stated that precoat

primers are needed for cut through areas where bare metal has been exposed in order to pacify the metal before waterborne coatings are applied. The commenter stated there has been some confusion about the ability of a pretreatment coating to serve the same purpose as a precoat. The commenter stated that a pretreatment primer is not recommended for application over existing paint films because of its acidity. This commenter also stated that State rules that currently recognize precoats might be invalidated by the absence of the coating category in the national rule.

Response: The EPA has no information indicating a need for a separate category for coatings applied to bare metal prior to waterborne coating application, and the final rule does not include such a category. Metal conditioners can be used to prevent corrosion to "cut through" bare metal surfaces, or a regular primer can be applied. Also, information available to the EPA indicates that some pretreatment primers can be applied over existing painted surfaces. One of the first rules for automobile refinishing was SCAQMD Rule 1151. This rule contained a precoat category with the VOC limit suggested by the commenters. The precoat category was removed from this rule in January 1995. Reported abuses of the precoat category contributed to its removal. The EPA does not view the exclusion of a precoat category as an invalidation of some State rules. The EPA views it as merely a situation where the Federal rule is more stringent than some State rules.

Comment: Several commenters (IV-D-11, VI-B-01, VI-B-02, VI-B-05) stated support for a separate coating category in the rule for multi-colored topcoats, which are wear-resistant coatings used mainly for lining the cargo beds of pickup trucks and other utility vehicles. One commenter (IV-D-11) stated that the SCAQMD rule 1151 has a separate category and VOC content standard (5.7 lb. VOC/gal. coating) for multi-colored topcoats, and recommended the EPA either include a separate category for these coatings or include them in the definition of specialty coatings. Another

commenter (VI-B-01) stated that the term "multi-colored splatter finish" would better describe the function of such a coating. The commenter suggested the following definition: "multi-colored splatter finish means a coating that exhibits more than one color, that is packaged in a single container, and that camouflages surface defects on areas of heavy use, such as cargo beds and other surfaces of trucks and other utility vehicles."

Response: The EPA has considered the issues raised by the commenters and has modified the rule accordingly. Because of their special use as protective coatings, multi-colored topcoats could be classified as specialty coatings. However, since such coatings can meet a VOC content standard lower than that for specialty coatings, they are included in a separate category in the final rule. The EPA has no information indicating multi-colored topcoats can meet VOC content standards lower than the limit recommended by the commenter.

The EPA believes that the term "multi-colored topcoat" is satisfactory in describing such coatings. The word "splatter" is ambiguous, and the EPA does not believe that it would better describe such coatings. The EPA is, however, revising the definition of multi-colored topcoats in the final rule to be more consistent with some State rules, and to address the public comments. The definition in the final rule states that such coatings exhibit more than one color, are packaged in a single container, and camouflage surface defects on areas of heavy use, such as cargo beds and other surfaces of trucks and other utility vehicles.

Comment: One commenter (IV-D-08) suggested the addition of a separate coating category for impact-resistant coatings, instead of including them in the specialty coatings category. The commenter stated that waterborne and solventborne impact-resistant coatings have been developed with VOC contents lower than 250 grams VOC/liter coating, and that such coatings dry without heating or forced drying. However, the commenter recommended a VOC content limit of 840 grams VOC/liter coating

until January 1, 1998, when the commenter claimed that all impact-resistant coatings would be capable of meeting the lower limit. The commenter suggests the same be done for underbody coatings.

Response: The EPA appreciates the interest of the commenter in reducing potential VOC emissions from these coatings, but the EPA has concluded that the suggested changes are not appropriate at this time. Impact-resistant coatings and underbody coatings were included in the specialty coating category in the proposed rule because of their special uses, and because the EPA had no information indicating that most of such coatings could meet a lower VOC limit. Information supplied by the commenter indicates that there are waterborne impact-resistant coatings and underbody coatings capable of meeting the limit suggested by the commenter; however, in low temperature and/or high humidity situations, such coatings could have significant dry times. Drying equipment may be necessary for the use of such coatings in some situations. The EPA has no information indicating that there are solventborne coatings for such purposes that can meet the VOC limit suggested by the commenter. Impact-resistant coatings and underbody coatings are in the specialty coatings category in the final rule.

2.2.4 Compliance Requirements

Comment: One commenter (IV-D-08) supported delaying the compliance date of the rule to allow companies to prepare and submit variance applications, and possibly to receive variances, before the compliance date of the rule. The commenter also recommended explicit provisions that would protect companies from enforcement action while variance applications are being reviewed by the EPA. The commenter stated that air pollution districts in California typically do not take enforcement action when a variance application is pending. The commenter suggested the following addition to the variance provisions of the rule:

> Where a person has applied for a variance, no notices of violation shall be issued during the period between the date

of filing for the variance and the date of decision by the EPA, for violations covered by the variance application.

Response: As discussed in section 2.2.7, variances were included in the rule mainly because new automobile substrates or coatings may necessitate the development of new compatible refinish coatings, and there is no way to determine prospectively whether all new refinish coatings can comply with the VOC content limits of the rule. Regulated entities may thus need additional time to formulate compliant coatings in such situations, which would be available through the variance procedure. Since most, if not all, of the concerns over coatings that may not be able to comply with the rule have been addressed in the rulemaking process, the EPA does not expect that regulated entities that will need to obtain variances before the compliance date of the rule.

While the rule is silent on the issue of whether a regulated entity is in violation while a variance application is pending, the EPA will bear the commenter's concern in mind in reviewing such applications. It is generally not the EPA's practice to take enforcement action against a source that has filed a good faith variance request until the Agency has acted upon the request negatively.

2.2.5 Labeling Requirements

Comment: Several commenters (IV-D-06, IV-D-07, IV-D-13, IV-D-14) recommended that the labeling provisions be revised to allow the date or batch code to appear on the bottom of the coating container. The commenters stated that labels sometimes peel off, and the lids of some coating containers (e.g., toners) are sometimes replaced with lids that allow for the mixing and agitation of the coating.

Response: The EPA agrees that it is appropriate to allow the required information to appear on alternative places on the product to avoid such problems. Accordingly, the final rule requires the date or batch code appear on a coating component

container or package, but the rule does specify where on the container it must appear.

Comment: One commenter (IV-D-06) stated that clarification was needed in the proposed rule to emphasize that the requirement for batch/date codes on coating containers applies only to coating manufacturers and importers. The commenter provided an example where a coating distributor prepares a custom color for a user, which involves mixing several coating components. The commenter noted that although the components may have batch/date codes on their original containers, the prepared coating may be placed in a separate container with no such codes. The commenter stated that coating manufacturers and importers have no control over, and should not be liable for, what distributors or coating users may do with coatings.

Response: The applicability provisions state that manufacturers and importers are subject to the rule. Distributors are not subject to the rule. Compliance with the labeling provisions of the rule would be determined by inspecting the coating components as supplied by a manufacturer or importer, not as supplied by a distributor.

2.2.6 Reporting Requirements

Comment: One commenter (IV-D-07) stated that the rule does not identify where regulated entities are to send the required reports. The same commenter requested confirmation that no reports will be required other than those specified in the proposed rule. Another commenter (IV-D-10) expressed concern about the minimal reporting requirements of the rule, and recommended that the EPA consider requiring submittal of reports that include the mixing instructions and VOC content of coatings subject to the rule. The commenter stated this information would be helpful in detecting regulatory misunderstandings or misinterpretations on the part of coating manufacturers and importers.

Response: The proposed rule did not identify where reports are to be submitted, but the final rule includes these addresses.

The rule specifies exactly what information is required to be reported. Compliance with the VOC content limits of the rule will be determined by "spot-checking" regulated entities, and the EPA believes that there will be sufficient information available from the regulated entity at the time of spot-checking to determine product recommendations and mixing instructions. To determine which coatings each regulated entity manufactures or imports, the EPA has included in the final rule a requirement to submit in the initial report a list of coating types manufactured or imported by the entity.

2.2.7 Variances

Comment: Several commenters (IV-D-05, IV-D-06, IV-D-13, IV-D-14) supported including variance provisions in the final rule, but some stated that the proposed provisions should be revised to allow permanent variances for situations where a coating is needed to refinish a new substrate or OEM finish. One commenter (IV-D-10) stated that variances are not needed because the proposed rule is not technology-forcing; compliant products have been available for years.

Response: Because of the need to provide for new coatings, the EPA has retained the temporary variance provisions. The allowance of permanent variances was considered, but rejected because it may remove the incentive for the formulation of new compliant coatings. The temporary variances allowed in the final rule can last up to five years, which the EPA believes should allow manufacturers sufficient time to develop compliant coatings. In the event that a regulated entity developed a new coating that genuinely could not meet the limits of the rule after the expiration of a variance, that entity could petition the EPA to consider revision of the rule or extension of a variance.

With respect to the other commenter, the EPA notes that although the rule is not currently technology-forcing, it could be in the future if new automobile substrates or coatings necessitate the development of compatible refinish coatings. The

EPA believes it is appropriate to include a variance mechanism for such situations. The EPA considered having an open-ended definition of specialty coatings that would allow the addition of new coatings; however, this option was not chosen because of the potential abuse of such a definition.

Comment: Several commenters (IV-D-05, IV-D-06, IV-D-13) stated that the proposed rule did not address the likelihood that, after the compliance date, there would be an imbalance of available stock that needs to be used. If these coatings are not used, then significant amounts of solid waste will be created. An example provided by one commenter (IV-D-13) is the use of multiple tinting colors to create a topcoat. The commenter stated that some of these colors will be depleted before others, and that if no more is allowed to be produced, users would have to dispose of the remaining colors. This commenter suggested that the EPA include a mechanism by which, after the compliance date, sufficient amounts of noncompliant coatings can be produced to "re-balance" existing inventories. The commenter suggested a provision requiring manufacturers to notify the EPA, 30 days in advance, that a specific amount of noncompliant coatings will be produced to balance existing stocks. Another commenter (IV-D-05) stated that such re-balancing can be achieved using the variance provisions of the proposed rule, but the variance would need to be approved quickly, in less than eight weeks.

Response: The EPA does not believe that there will be significant imbalances in existing stock after the compliance date of the rule. Most State rules contain VOC content limits identical to the national rule. These State rules typically have not caused products to be removed from the market, but have instead caused modification of existing coatings. The tinting colors used before the compliance date of the rule likely will be used after the compliance date. For the few products expected to be removed from the market that may require "re-balancing," the anticipated national rule compliance date of December 1998 should

provide coating manufacturers and importers ample time for this purpose.

2.2.8 Test Methods

Comment: Several commenters (IV-D-05, IV-D-06, IV-D-07, IV-D-13, IV-D-14, VI-B-03) stated that EPA Method 24 should be updated to account for the exclusion of acetone and other exempt compounds. Several commenters stated that alternate test methods or coating formulation data should be included as a means of determining VOC content. One commenter (IV-D-05) stated that VOC content standards can not be defined beyond two significant figures because of the uncertainty associated with EPA Method 24.

Response: EPA Method 24 includes a method for determining the amount of exempt compounds in coatings, but does not specifically mention acetone because it was just recently added to the list of exempt compounds. However, the method can be used to determine the amount of acetone in coatings.

Regulated entities may use any means to determine VOC content to ensure themselves of their compliance, including the use of formulation data. However, since formulation data does not account for "cure volatiles" that may be emitted during the chemical reactions that occur in many coatings, Method 24 will govern if there are any inconsistencies between the results of a Method 24 test and any other means for determining VOC content. The EPA notes that it may use other credible evidence to establish violation of the rule. The EPA agrees that Method 24 is accurate to two significant figures. The VOC content limits in the final rule contain only two significant figures.

Comment: Several commenters (VI-B-01, VI-B-02, VI-B-07) agreed with the EPA's proposal to determine the acid content of pretreatment wash primers by using ASTM Method 1613-91 to determine the acid content of the non-pigmented component of such primers. However, one commenter (VI-B-01) stated that paint companies are attempting to develop single component pretreatment wash primers, since single component coatings are easier to use. The commenter stated that the EPA should allow a regulated entity

to sell such coatings if it submits to the EPA an effective, repeatable method for determining acid content.

Response: ASTM Method 1613-96 is the most current version of the method for determining acid content, and the final rule references this version. The proposed rule stated that the Administrator may approve, on a case-by-case basis, alternative methods of determining the VOC content of coatings. The final rule makes this provision more general to allow the use of alternative methods for determining acid content and specular gloss.

2.2.9 Miscellaneous

Comment: One commenter (IV-D-02) did not support the rule, stating that automobile refinish coatings are not a significant source of VOC's, and that they do not contribute to the formation of ozone. This commenter stated that automobile exhaust is responsible for pollution, not automobile refinish coatings.

Response: The EPA has concluded that VOC emissions from consumer and commercial products, which include automobile refinish coatings, have the potential to contribute to ozone nonattainment, based on the section 183(e) study and a large body of scientific knowledge on photochemical reactivity and the role of VOC in ozone formation.

The EPA is not alone in its assessment. A 1989 report by the Congressional Office of Technology Assessment, "Catching Our Breath: Next Steps for Reducing Urban Ozone," identified VOC emissions from solvents in paints and coatings, and from other types of products, as a significant contributor to the ozone pollution problem that had largely escaped regulation at the federal level. Several states have moved on their own to limit VOC emissions from paints and coatings because they contribute to ozone pollution. In June 1997, the 37-state Ozone Transport Assessment Group (OTAG) recommended that the EPA proceed with finalizing the proposed national rules for architectural coatings, consumer products, and automobile refinish coatings,

and even develop more stringent future requirements for these categories.

The following considerations and scientific studies are among those supporting the EPA's position that the VOC in consumer and commercial products have the potential to contribute to the ozone pollution problem:

- Ozone pollution is caused by the reaction of VOC and nitrogen oxides (NOx). All VOC species have the potential to form ozone (i.e., are reactive) to some degree. Since the late 1940s, the scientific community has recognized this basic tenet of atmospheric chemistry. For example, the 1996 EPA document entitled "Air Quality Criteria for Ozone and Related Photochemical Oxidants" and its 1970 and 1977 predecessors include discussions of the atmospheric chemistry leading to formation of ozone and the important role of VOC in that formation. These documents have been extensively reviewed by independent scientific experts on the Clean Air Scientific Advisory Committee.

- The EPA's consumer and commercial products study includes a broad inventory of VOC emissions from consumer and commercial products. The study showed that emissions from consumer and commercial products in 1990 were large -- an estimated 28 percent of total manmade VOC emissions nationwide. In ozone nonattainment areas, these emissions in 1990 totaled 3.3 million tons per year. These totals consist of contributions from a large number of individual pollution sources that are relatively small. About 97,400 tons per year of VOC's are emitted from the application of automobile refinish coatings

- In the 1990 Clean Air Act Amendments, Congress established a program requiring the EPA to regulate volatile organic compound (VOC) emissions from consumer and commercial products because these emissions were an increasingly large percentage of the man-made VOC emissions, the EPA had not previously regulated them, and industry was starting to be faced with a "patchwork" of State regulations of these products. EPA and State regulations have long controlled both Nitrogen Oxides (NOx) and VOC emissions to reduce ozone levels. However, these previous control strategies focused on stationary sources (e.g., factories) and motor vehicles. In this context, it is relevant to note that the types of VOC in consumer and commercial products are not unique -- these same VOC are among the pollutants emitted by major industrial facilities. Consumer and commercial products are made from VOC-containing chemical feed stocks made at chemical manufacturing plants and refineries, for which VOC

emission control regulations are comprehensive and stringent.

These issues are discussed in more detail in the other document supporting this rule, the "Response to Comments on Section 183(e) Study and Report to Congress" (EPA-453/R-98-007).

Comment: One commenter (IV-D-06) asked the EPA to explain how the proposed rule will affect existing State automobile refinish rules. Some commenters (IV-D-05, IV-D-13, IV-D-14) stated that Los Angeles County Air Pollution Control District Rule 66 (Rule 66) is inconsistent with the proposed national rule because it considers the photochemical reactivity of compounds, whereas the national rule does not. One commenter (IV-D-14) stated that reconciling the national rule with such inconsistent ancient State requirements would be disruptive to industry.

Response: Section 183(e) of the Act directs the EPA to promulgate rules to reduce VOC emissions from consumer and commercial products, including automobile refinish coatings. These rules do not preempt any existing or future State or local rules. Thus any existing State or local rules shall remain in effect, unless the relevant State or locality chooses to rescind them. If the national rule is more stringent than a State or local rule, then regulated entities must comply with it. If State or local rules are more stringent than the national rule, then regulated entities must comply with them as well. The EPA notes that several State and local air pollution agencies have developed automobile refinish rules over the past several years. With the exception of California rules, most State rules contain VOC content standards very similar to those in the proposed national rule. California districts generally have rules more stringent than the national rule.

Comment: Several commenters (IV-D-02, IV-D-05, IV-D-06, IV-D-13, IV-D-14) stated that the EPA's cost estimates are misleading because they do not reflect the cost increase for "ready-to-spray" coatings. One commenter (IV-D-13) asserted that coating manufacturers will be perceived as price gouging their

customers since the EPA's estimated cost increase is much lower than the cost increase for ready-to-spray coatings. This commenter also disagreed with the EPA's contention that the rule will have no productivity impacts on body shops. The commenter stated that although many shops currently use coatings not significantly different from compliant coatings, about 30% of shops use cheaper, more productive coating formulations that are easier to apply, faster drying, and easier to sand. The commenter claimed that some of these coatings would be eliminated under the proposed rule. Another commenter (IV-D-05) stated that cost increases for compliant coatings result from research and development, coating production process modifications, training, and raw materials. This commenter also stated that in parallel to solvent reduction, compliant coatings will be applied with higher solids content, making the expensive portions of the coating more concentrated. This higher solids concentration will translate to less coating being needed to complete a job, but the apparent price will be higher.

Response: The cost per gallon of coating was estimated simply by dividing the annual cost of the national rule by the number of gallons of coatings used annually. The purpose of such an estimate was to roughly gauge how the total cost of the rule compares to the cost of coatings. The annual cost of the rule, as stated in the preamble to the proposed rule, consists of training costs and manufacturer process modification costs. Research and development costs were not included because coatings compliant with the national rule have already been developed to comply with State and local rules or for other reasons.

The EPA agrees that the estimated increase in cost per gallon of coating could be misleading. The "ready-to-spray" (or apparent) costs of coatings vary significantly. Since conventional coatings have relatively high solvent content, the amount of surface coverage achievable with such coatings is lower than that of coatings with less solvent content. The amount of surface coverage of coatings should be considered when

determining the actual cost of a coating. For example, a coating with twice the surface coverage and apparent cost of another coating has the same actual cost, because the same amount of coating covers twice the surface area. The EPA did not intend to suggest that coating users would always have a small increase in apparent costs, but the EPA anticipates that the actual cost increase will be nominal.

The EPA does not agree that the national rule will have productivity impacts, even though some coatings dry faster than others. According to a 1993 Automatic Data Processing refinish study (IV-J-1), even though there are specific differences attributed to various steps within each paint type, there is no significant difference displayed in overall refinish time that could be attributed to paint type.

Comment: One commenter (IV-D-16) stated that proper control of the transfer of VOC products through the distribution and usage chain must be achieved before any meaningful reduction in VOC emissions is realized. The commenter believes that the EPA must establish the procedural means to limit the transfer of products containing VOC's to those who are properly trained and certified to sell, apply, and dispose of such products, similar to the EPA's approach to control the sale of products containing chlorofluorocarbons (CFC's). The commenter stated that the EPA should limit the sale of coatings to commercial entities with controlled air spray systems, spray gun cleaners, and enclosed containers for storing clean-up and surface preparation materials and contaminated cloth and paper.

Response: The EPA does not agree that the sale of coatings must be restricted to trained, certified users to achieve VOC reductions. The VOCs present in coatings will eventually be emitted to the atmosphere regardless of whether coatings are applied by a private citizen or a professional painter at a body shop. The EPA believes the best way to reduce VOC emissions from these products is to lower the VOC content of coatings. The amount of CFCs emitted to the atmosphere from air conditioning

system recharging depends on an individual's skill and experience; therefore, emission reduction strategies for CFCs are different from those for VOCs.

Although a private citizen will not likely obtain the services of a licensed waste hauler to dispose of waste coatings, many communities have recycling centers that accept them. The authority of the Act under which the national rule is written does not allow for the regulation of coating users. However, the EPA encourages the use of spray gun cleaners and high-transfer-efficiency spray guns by coating users.

Comment: One commenter (IV-D-05) recognized that the authority under which the national rule is written does not allow the issuance of a regulation regarding the work practices of painters, such as the use of high volume low pressure (HVLP) spray equipment and enclosed spray gun cleaners. The commenter stated that these practices are the easiest and most cost-effective methods for reducing emissions from body shops. The commenter stated that the final rule should include an endorsement of work practices.

Response: As the commenter recognizes, the EPA does not have the authority to regulate coating users under section 183(e) of the Act. However, the EPA encourages coating users to reduce emissions any way they can. The EPA agrees that work practices and equipment described by the commenter are cost-effective ways to reduce emissions.

Comment: One commenter (VI-B-01) stated that requiring regulated entities to perform an annual certification of their coatings would help to ensure compliance. The commenter also stated that requiring regulated entities to provide users with compliance materials, such as wall charts for body shops, would reinforce the use of compliant coatings. Another commenter (VI-B-07) stated that the EPA should issue guidance for States to consider adopting that would allow enforcement of the VOC limits at the distributor and end-user levels. The commenter stated

that State adoption of such guidance will assist in complying with the VOC limits of the national rule.

Response: The EPA believes that coating certifications (by coating component manufacturers and importers) may help ensure compliance with State rules. Since end-users subject to State rules have the opportunity to use either compliant or noncompliant coatings, information from coating certifications, wall charts, etc., can assist them in determining which coatings are compliant. Of course, the certifications do not prevent end-users from using noncompliant coatings, but they do inform the State and the end-user of the compliant coatings are being sold in the regulated area. For the national rule, all coatings must be compliant. Therefore, the EPA sees less value in coating certifications that explain which coatings are compliant. The final rule does not include requirements for coating certifications.

As one of the commenters acknowledges, the EPA does not have the authority under section 183(e) of the Act to regulate end-users. However, the EPA published an Alternative Control Techniques document in April 1994 (document no. EPA/R-94-031) for automobile refinishing that described various ways to achieve VOC emission reductions at the end-user level. Several States used this guidance in developing rules for automobile refinishing. Some of the State rules contain the same VOC content limits as the proposed national rule. The EPA believes that there is information available to the States that would allow them to implement their own control and enforcement measures for automobile refinishing.

Comment: Two commenters (IV-D-09, IV-D-10) stated that the EPA should continue to consider VOC emissions in attainment areas in cost-effectiveness calculations. One of the commenters (IV-D-09) stated VOC emissions reductions in attainment areas should not be ignored because VOC's can be transported to nonattainment areas. Another commenter (IV-F-01) stated, "Congress wanted EPA to examine the cost-effectiveness of controlling consumer and

commercial product VOCs that potentially contribute to ozone areas which violate the ozone standard."

Response: Cost-effectiveness is a measure used to compare alternative strategies for reducing pollutant emissions, or to provide a comparison of a new strategy with historical strategies. The EPA's established method of calculating cost-effectiveness of a rule with nationwide applicability is to divide the total cost of the rule by total emissions reductions. In the proposed rule, the EPA requested comment on alternatives to this method, including basing cost-effectiveness on VOC reductions in ozone nonattainment areas only, and basing it on seasonal (versus year-round) VOC reductions. After considering these comments, The EPA does not plan to adopt alternative approaches to calculating cost-effectiveness for rules with nationwide control requirements, for reasons that are presented below.

One issue is whether the EPA's traditional measure creates a bias against strategies that apply in a limited geographic area (e.g. in nonattainment areas) relative to nationwide strategies, or against seasonal strategies relative to year-round strategies. This issue would arise if the Agency used cost-effectiveness figures to compare the desirability of these dissimilar types of strategies. In fact, the EPA did not use cost-effectiveness estimates in this way in developing the automobile refinish coatings rule. In the case of the automobile refinish coatings rule, the EPA considered applying restrictions to such coatings only in nonattainment areas (either by rule or through control techniques guidelines for states). The Agency believes that geographically targeted restrictions for these nationally distributed products would pose substantial implementation difficulties for government, would impose substantial compliance burdens on regulated entities, and would be less effective at reducing emissions than a national rule. Because the EPA believes that a strategy applicable only to nonattainment areas would be less desirable than a national rule, the EPA did not see

a need to invest resources to pursue that strategy and calculate its cost-effectiveness.

Another issue is whether the alternative methodology is appropriate for comparing nationwide and target geographic strategies, and year-round and seasonal strategies, for reducing ozone pollution. The EPA believes that these alternative methodologies would not be appropriate for such comparisons. The EPA has the following concerns with the two alternative approaches:

- First, VOC emission reductions have benefits other than reducing ozone levels in nonattainment areas. As a result, The EPA believes the cost-effectiveness calculation for a nationwide, year-round rule should not exclude VOC emission reductions in attainment areas or outside the ozone season. The EPA recognizes a primary objective of Section 183(e) of the Clean Air Act is to reduce VOC emissions in ozone nonattainment areas. However, as previously explained, in the development of the automobile refinish coatings rule the EPA believes that the best policy alternative is to implement a nationwide rule. Therefore, emission reductions from this rule will not only be realized in ozone nonattainment areas, but also in all other parts of the country in which such products are distributed and consumed.

  In general, the benefits of VOC reductions in ozone attainment areas include reductions in emissions of VOC air toxics, reductions in the contribution from VOC emissions to the formation of fine particulate matter, and reductions in damage to agricultural crops, forests and ecosystems from ozone exposure. Emission reductions in attainment areas help to maintain clean air as the economy grows and new pollution sources come into existence. Also, ozone health benefits can result from reductions in attainment areas, although the most certain health effects from ozone exposure below the NAAQS appear to be both transient and reversible. The closure letter from the Clean Air Science Advisory Committee (CASAC) for the recent review of the ozone NAAQS states that there is no apparent threshold for biological responses to ozone exposure [Source: U.S. EPA; Review of NAAQS for Ozone, Assessment of Scientific and Technical Information, OAQPS Staff Paper; document number: EPA-452\R-96-007].

- Second, under either alternative approach, emission reductions in ozone attainment areas would not be included in the calculation. This appears to imply that emissions reductions in attainment areas do not contribute to cleaner air in nonattainment areas. VOC sources in regions adjacent to nonattainment areas may contribute to ozone levels in nonattainment areas. As a result, a cost-effectiveness comparison based on the alternative approaches sometimes could create a bias against a nationwide rule relative to a strategy that applies in nonattainment areas only.

  The EPA also considers it impractical to apply a weighting factor to account for differences in the extent to which emissions inside and outside nonattainment areas contribute to ozone formation in nonattainment areas. The EPA is concerned that in order to calculate cost-effectiveness using this concept, the Agency would have to conduct extensive and costly air quality modeling to estimate ozone reductions resulting from each candidate control strategy and that this would require extensive data on the location of emissions. Such detailed analysis is appropriate for some policy decisions, but not for others. As a result, The EPA is skeptical that this weighting approach would represent a generally useful analytical tool for decision making.

The EPA, of course, agrees that differences in the location and timing of emission reductions are a significant consideration in choosing among alternative strategies. The extent of ozone reductions and other benefits resulting from VOC emission reductions varies, partly based on location and season. In considering nationwide vs. geographically targeted controls, and year-round vs. seasonal controls, the Agency considers available information on the effectiveness of those strategies in reducing ozone -- as well as other health and environmental considerations, economic considerations, and other relevant factors -- in making a holistic assessment of which strategy is most desirable from an overall public policy standpoint.

There are instances where the EPA does provide an estimate of cost-effectiveness of a control strategy during the ozone season -- generally, when a control strategy is feasible to apply on a seasonal basis, or when limits are set on a seasonal basis.

Although these figures are useful for comparing different seasonal strategies, The EPA does not plan to use cost-effectiveness figures for inappropriate (i.e., apple to orange) comparisons between seasonal and year-round strategies for the 183(e) program for the reasons presented above. In regard to the automobile refinish coatings rule, the EPA notes that the nature of the emissions does not allow for control strategies that reduce emissions only during the ozone season to be an objective for consideration. One reason is that the shelf life and consumption rate of automobile refinish coatings varies greatly and one cannot predict that a certain percentage of a product made with a specified formulation will be consumed and thus emitted during the ozone season. Because the EPA has concluded that an ozone season-based approach is not a viable control strategy for such products, the EPA did not believe it was appropriate to develop a seasonal-based approach to measuring cost-effectiveness for the automobile refinish coatings rule.

Comment: One commenter (IV-D-01) stated it is unfair to single out waterborne coatings as having potential to increase water pollution. The commenter asserted that waterborne coatings are sold with clear instructions to dispose of waste materials according to local laws using a licensed waste hauler.

Response: The EPA did not mean to imply that waterborne coating users are more likely to pollute than solventborne coating users. The EPA is merely suggesting that if a coating user does not dispose of waste according to applicable laws or regulations, waterborne coatings, since they are water soluble, are more likely to be poured down a drain than solventborne coatings. In identifying potential adverse environmental impacts, the EPA believes that it is appropriate to include this as a consideration.

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

A final rule for the regulation of volatile organic compounds (VOC) from automobile refinishing is being promulgated under the authority of Section 183(e) of the Clean Air Act. This document contains comments received from the public, and the EPA's responses to these comments.

17. KEY WORDS AND DOCUMENT ANALYSIS

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