

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park, NC 27711

FINAL REPORT
EPA-452/R-98-002
July 1998

Air



ECONOMIC IMPACT AND REGULATORY FLEXIBILITY ANALYSES OF THE FINAL ARCHITECTURAL COATINGS VOC RULE

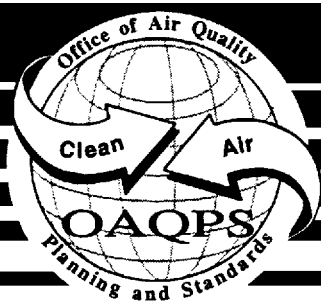


TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Executive Summary	ix
1 Introduction, Regulatory Background, and Industry Profile	1-1
1.1 Introduction	1-1
1.2 Regulatory Background	1-2
1.2.1 Regulatory Structure	1-3
1.3 Industry Profile	1-5
1.3.1 Commodities and VOC Content	1-5
1.3.2 Demand for Architectural Coatings	1-8
1.3.2.1 Conceptual View of Coating Decision	1-8
1.3.2.2 Substitution Effects	1-10
1.3.2.3 Aggregate Demand	1-11
1.3.2.4 Coating Users	1-11
1.3.3 Production of Architectural Coatings	1-12
1.3.3.1 Raw Material Inputs	1-12
1.3.3.2 Formulations	1-15
1.3.3.3 Manufacturers' Substitution Options and New Technologies	1-17
1.3.4 Industry Conditions	1-20
1.3.4.1 Shipments and Manufacturer Specialization	1-20
1.3.4.2 Company Size and Industry Structure	1-23
2 Costs of Proposed Regulation for Architectural Coating Producers	2-1
2.1 Background	2-1

2.2	Overview of Response Options	2-2
2.2.1	Supply	2-2
2.2.2	Demand	2-4
2.3	Cost Analysis	2-5
2.3.1	Costs of Reformulation	2-5
2.3.1.1	Product-Level Reformulation Cost Estimates	2-8
2.3.1.2	National Reformulation Costs	2-14

TABLE OF CONTENTS (continued)

<u>Section</u>		<u>Page</u>
	2.3.2 Exceedance Fee Provision	2-20
	2.3.3 Product Withdrawal	2-23
	2.3.4 “Best-Response” Analysis	2-24
	2.3.5 Tonnage Exemption	2-30
2.4	Cost Analysis Uncertainties	2-30
	2.4.1 Upward Bias	2-32
	2.4.2 Downward Bias	2-32
	2.4.3 Unknown Directional Effects	2-33
3	Architectural Coatings Market Analysis	3-1
3.1	Market Effects of Firm Responses to Regulation	3-1
3.1.1	Model Execution and Results	3-2
	3.1.1.1 Baseline	3-2
	3.1.1.2 Quantifying Market Shocks	3-3
3.2	Architectural Coatings Industry Employment Impacts	3-10
4	Traffic Coating User Costs	4-1
4.1	Truck Replacement Cost Method	4-2
4.2	Equipment Retrofit Method	4-5
4.3	National Incremental Cost Calculation	4-5
5	Social Cost-Effectiveness Analysis	5-1
5.1	Conversion of Impacts to Current Dollars	5-5
6	Small Business Impact Analysis	6-1
6.1	Background and Affected Entities	6-2
6.1.1	Potentially Affected Entities	6-3
6.1.2	Regulatory Requirements	6-5
6.2	Analysis	6-6
6.2.1	Baseline Market Presence of Small Architectural Coatings Producers	6-6
6.2.2	VOC Content of Small Business Products: Technology and Specialization Effects	6-11
6.2.3	Costs Associated With Regulatory	

	Compliance	6-17
6.2.4	Reformulation Cost Impact Estimates	6-18
6.2.4.1	Small Business Impacts Under “Reformulation-Only” Option	6-22

TABLE OF CONTENTS (continued)

<u>Section</u>		<u>Page</u>
	6.2.5 Cost Impacts Across Market Segments	6-23
	6.2.6 Average Cost Impacts for Small Company	6-25
	6.2.7 Potential Factors Mitigating Small Business Impacts: Exceedance Fee, Withdrawal, and Tonnage Exemption	6-27
	6.2.7.1 Fee and Withdrawal Options	6-27
	6.2.7.2 Tonnage Exemption	6-29
6.3	Regulatory Alternatives to Reduce Impacts	6-31
	6.3.1 Selection of VOC Content Limits and Coating Categories	6-33
	6.3.2 Low-Volume Exemption Option	6-34
	6.3.3 Exceedance Fee Compliance Option	6-38
	6.3.3.1 Exceedance Fee Rate	6-41
	6.3.4 Extended Compliance Time for Small Businesses	6-44
	6.3.5 Compliance Variances	6-45
	6.3.6 Selection of Recordkeeping and Reporting Requirements	6-47
6.4	Small Business Impact Summary	6-49
7	Epilogue	7-1
	7.1 New Product Categories	7-1
	7.2 Categories with Higher VOC Content Limits	7-6
	7.3 Summary	7-7
8	References	8-1
 Appendices		
A	Market Definition, Demand Estimation, and Data	A-1
B	Summary of Reformulation Cost Estimates from Public Comments	B-1
C	Calculation of Regulation-Induced Costs when Reformulation Normally Occurs at Fixed Time Intervals	C-1
D	Methodology for Computing Market and Welfare	

Adjustments	D-1
-------------------	-----

LIST OF FIGURES

<u>Number</u>		<u>Page</u>
1-1	Comprehensive classification of emissions from consumer and commercial products.	1-2
1-2	Inputs generally used in the manufacture of a solventborne coating	1-16
1-3	Inputs generally used in the manufacture of a waterborne coating	1-16
1-4	Approximate volume relationships of coating ingredients	1-18
1-5	Location of manufacturing establishments in the paints and allied products industry in 1987: SIC 2851	1-27
2-1	Basic stages of architectural coating reformulation (prototype firm and product)	2-4
2-2	Fee versus reformulation	2-22
4-1	Cost schedules with and without accelerated replacement	4-4
4-2	Replacement cost schedules with and without equipment retrofit	4-6
6-1	Chain of ownership	6-4

LIST OF TABLES

<u>Number</u>		<u>Page</u>
1-1	Average VOC Content for Architectural Coatings Expected to Be Covered by Proposed Regulation	1-7
1-2	Consumers of Architectural Coatings	1-12
1-3	Percentage of Solvent in Conventional and Reformulated Organic Solventborne Coatings	1-19
1-4	Value Shipped of Potentially Regulated Paint and Allied Products: 1981 Through 1991	1-21
1-5	Number of Companies, Establishments, and Producer Specialization—Paint and Allied Products: 1987	1-24
1-6	Commodity Production in 1982: Paint and Allied Products	1-25
1-7	Large Firm Dominance and Numbers of Companies and Establishments in the Paint and Allied Products Industry: 1987	1-27
1-8	Number of Companies and Establishments in the Coatings Industry, Selected Years, 1972-1991	1-28
1-9	Recent Acquisitions in the Coatings Industry	1-29
2-1	Table of Standards	2-6
2-2	National Costs: Reformulation-Only Scenario	2-19
2-3	Architectural Coatings Market Segments Baseline Data	2-27
2-4	Best-Response Option Analysis—Survey Population: Fee = \$2,200/ton	2-28
2-5	Reformulation Cost Analysis Uncertainties	2-31
3-1	Regulatory Effects on Architectural Coatings Market Output and Prices	3-6
3-2	Architectural Coatings Market Welfare Effects	3-9
3-3	Estimated Employment Effects	3-11

LIST OF TABLES (continued)

<u>Number</u>		<u>Page</u>
4-1	National Incremental Cost of Traffic Coating Equipment Replacement and Retrofits—Medium Stripers	4-7
4-2	National Incremental Cost of Traffic Coating Equipment Replacement and Retrofits—Large Stripers	4-9
4-3	National Incremental Cost Summary for Traffic Coating Equipment	4-11
5-1	Social Cost-Effectiveness Estimates	5-4
5-2	Conversion of Summary Impacts to 1996 Dollars	5-5
6-1	Small Business Presence in the Architectural Coatings Market: Survey Population	6-7
6-2	Baseline VOC Content	6-12
6-3	Specialization-Based Average VOC Content: Small Business Products	6-15
6-4	Small Business Costs by Market Segment: Reformulation Option Only	6-19
6-5	Average Regulatory Impact by Firm Size— “Reformulation-Only” Scenario	6-26
6-6	Average Regulatory Impact for Small Companies— “Best-Response” Scenario	6-28
7-1	Table of Standards: Interim vs. Final	7-4

EXECUTIVE SUMMARY

Under Title I of the Clean Air Act of 1990, the U.S. Environmental Protection Agency (EPA) is developing regulations to reduce volatile organic compound (VOC) emissions from various consumer and commercial products. One of the first categories of consumer and commercial products to be regulated is architectural coatings. This report analyzes the costs and economic impacts of the final architectural coatings rule.

The general purpose of the regulation is to reduce the flow of VOCs into the atmosphere from the use and disposal of architectural coating products. These emissions are distinguished from the manufacturing-related emissions that are controlled by other forms of regulation (as are emissions to land and water).

VOC emissions are regulated because of their contribution to the formation of ground-level ozone. Elevated levels of ozone degrade air quality and pose a variety of health risks to exposed populations.

ES.1 COMPLIANCE ACTIONS

The regulation imposes a set of standards for VOC content for individual architectural coating products. Products that exceed the limits imposed by these standards must either be brought into compliance with the limits, have an exceedance fee assessed on the product's VOC content above the limit, or be withdrawn from the market. These actions, however, can be avoided for products subject to the small tonnage exemption.

ES.2 COMPLIANCE COSTS

The number of compliance actions was estimated using survey data on VOC content and sales volumes for almost 5,000 architectural coating products manufactured by 116 companies. The surveyed products constitute about three-quarters of industry output. The survey data were used to estimate the compliance activity for the products and manufacturers not covered in the survey and is thereby the basis for the national estimate of costs.

Initially, the regulatory impacts were viewed in a very restrictive light, assuming that reformulation down to the standards is the only option available to producers. The aggregate costs of this restrictive option were then computed to give a benchmark measure of regulatory costs under a restrictive set of conditions. The costs in Table ES-1 present both the initial one-time expenditure for the reformulations and the costs expressed in annualized terms.

TABLE ES-1. NATIONAL COST FOR ARCHITECTURAL COATINGS
PRODUCERS—REFORMULATION-ONLY

Total Initial Expenditure (\$1991)	Total Annualized Cost (\$1991)
204.0 million	34.2 million

The analysis was expanded by progressively shedding the restrictive assumptions of forced reformulation. First, the exceedance fee option was incorporated, taking into account that producers may choose to pay an exceedance fee rather than reformulate if it is a less costly alternative for them. Then, the least-cost compliance option (fee or reformulation) was compared with benefit streams (net revenues) to determine if the least-cost option is also profitable. If the value of the benefit stream is less than the cost of compliance, firms are assumed to remove the products from the market as a best-response strategy. Alternative response options reduce the cost of the regulation by approximately 20 percent for the architectural coating producers included in the survey. Cost reductions are likely to be greater for the nonsurvey population and are further reduced when market-level responses are factored in (see below). Most of the cost savings is attributable to adopting the exceedance fee, which is projected to be the compliance option for a number of products that are either very small in volume or have a VOC content

relatively close to the limit. Because the fee is generally adopted for relatively small sources of VOC “exceedance,” the effect on VOC emissions reductions is projected to be relatively small.

ES.3 MARKET EFFECTS

The compliance actions lead to a reallocation of society’s resources toward VOC controls, which imposes opportunity costs directly on the producers and indirectly on other members of society as producers act, markets respond, and prices and output change. The purpose of the architectural coatings market analysis is to characterize the reallocation of resources and quantify them in dollar-denominated terms to assess the distribution of costs and economic impacts of the regulation.

The collective effect of some producers removing unprofitable products and some producers bearing a per-unit fee on output will contract the aggregate supply of architectural coatings and lead to changes in market prices and quantities. The optimal best-response actions and resulting market outcomes will determine how the welfare costs of the policy are distributed across producer groups, consumers, and the government sector.

Several scenarios were modeled for the standards. In general, market model results indicate a very small change in baseline market conditions as a result of the regulation. This derives from the expectation that aggregate costs of the regulation are a small share of aggregate industry costs. However, because there is a high degree of producer heterogeneity within the architectural coatings sector, the costs for some producers may be large. The distribution of impacts across affected parties is presented in Table ES-2.

TABLE ES-2. MARKET IMPACTS SUMMARY

Aggregate Welfare Effects on....	(MM \$1991)
Architectural coating producers	-22.0
Architectural coating consumers	-4.3
Government (fee receipts)	+4.0
Net social welfare effect (“social cost”)	-22.3

A portion of the cost for architectural coating producers is passed on to consumers in the form of higher prices, which lowers their welfare. An important impact to consider is the effect of the fee payments. While these payments constitute losses for the producers paying the fee (less the amount they are able to pass on to the consumer via higher prices), these fee payments are simply transfer payments to the government and therefore do not constitute a net increase in social costs. In other words, while the fee serves as a private cost for firms that do not reduce VOCs to the statutory limit and a continuing incentive for producers to reduce VOCs to the limit, it does not constitute an allocation of society's resources to a particular use as, in contrast, the allocation of resources for reformulation does.

The net social cost estimate is substantially lower than the annualized cost estimate under the reformulation-only scenario described above. The market analysis demonstrates the potential for substantial cost savings due to adopting the fee alternative and how this cost savings is likely to accrue especially to producers of small volume products. Moreover, this cost savings is not expected to have a significant impact on undercutting aggregate emissions reduction targets.

ES.4 TRAFFIC COATING USER COSTS

The economic analysis up to this point has focused entirely on the primary impacts of the regulation, those borne directly by producers in the architectural coatings industry in the form of higher costs and indirectly by the consumers of architectural products in the form of higher prices. The driving force of those impacts is the requirement that, except for products subject to the tonnage exemption, noncompliant products must either be reformulated to a compliant VOC level, be subject to a fee on the excess VOCs over the allowable level, or be withdrawn from the market. However, this analysis considered a type of *secondary* impact, one that is caused by the costs that users of a newly compliant product must incur to purchase the special equipment necessary to apply the compliant coating. The secondary impact analysis focuses exclusively on users of traffic marking paints, primarily government entities such as state transportation departments, for whom the costs of switching application equipment ("striper" trucks) are thought to be potentially significant.

Traffic coating user costs are summarized in Table ES-3. Costs are estimated as the incremental cost associated with the accelerated replacement of striper trucks and are expressed both in terms of the present value of the one-time acceleration (\$53.2 million total) and on an annualized basis (\$3.7 million).

TABLE ES-3. NATIONAL INCREMENTAL COST SUMMARY FOR TRAFFIC COATING EQUIPMENT (\$1996)

Striper Type	Present Value of Cost	Annualized Cost
Medium (see Table 4-1)	\$42,844,912	\$2,999,144
Large (see Table 4-2)	\$10,393,011	\$727,511
Total	\$53,237,923	\$3,726,655

ES.5 SOCIAL COST-EFFECTIVENESS

The social cost estimates from the market analysis and the estimate of traffic coating user costs can be used to compute measures of the social cost-effectiveness of the regulation. The distinction of “social” cost-effectiveness is made to illuminate the fact that the costs evaluated are the net costs imposed on society (i.e., the net welfare costs estimated in the architectural coatings market plus the resource costs incurred by traffic coating users to switch application equipment).

Cost-effectiveness results are summarized in Table ES-4. Emission reduction effects of the regulation are estimated by taking the national target for VOC emission reductions from

TABLE ES-4. SOCIAL COST-EFFECTIVENESS SUMMARY

Social Cost (\$1991)	Estimated Emissions Reduction (Mg)	Social Cost per Mg (\$1991)
25.6 million	103,471	247

architectural coatings and modifying that total to account for market responses (fee adoption and changes in output levels).

This estimate allows for an evaluation of cost-effectiveness implications of the fee option. Allowing the fee reduces social costs by about \$12 million but foregoes about 1,802 Mg of emissions reduction, about 1.7 percent of the targeted reductions. Dividing the cost savings by foregone reductions approximates the marginal social cost of the foregone reductions. This figure is \$6,580/Mg, which is substantially higher than the \$247/Mg average social cost-effectiveness measure reported above. This difference indicates that the fee's main effect is to reduce the very most expensive emission reductions without substantially undercutting the achievement of emissions reduction.

For external reporting purposes, the economic impacts are reported in 1996 dollars. Costs are converted from the base year used in the analysis (1991) to 1996 using the Gross Domestic Product (GDP) price deflator. The conversion results are presented in Table ES-5.

TABLE ES-5. CONVERSION OF SUMMARY IMPACTS TO 1996 DOLLARS

Impact Estimate	\$1991	\$1996
Net social cost	\$25.6 million	\$29.2 million
Net social cost per Mg of emissions reduction	\$247/Mg	\$282/Mg

ES.6 SMALL BUSINESS IMPACTS AND REGULATORY FLEXIBILITY ANALYSIS

The potential for significant impacts on small businesses of the regulation arises from two primary sources:

- Products made by small producers, on average, have a higher VOC content than the industry average.
- The costs of reformulating products to comply with the regulation are fixed and thereby impose higher average costs on small volume coatings.

The first problem is related to small producers' tendency to specialize in coatings categories that are naturally higher in VOC content and to their tendency to concentrate in the "high-VOC" end of the distribution of products within a given category. Thus, the potential for disproportionate impacts of VOC reduction regulation on small businesses follows partly from the fact that small businesses contribute a disproportionate amount of the aggregate VOC emissions that are targeted for reduction.

The second problem follows from the nature of reformulation costs. A coating's formula is the product of an intellectual capital investment, much like the development of a drug or a computer software product. The cost of the investment follows directly from the level of effort necessary to revise the formula to meet both the VOC standards imposed by the regulation and performance standards imposed by the marketplace. This level of effort is essentially independent of the quantity of the product that is eventually sold. Therefore, the relative impacts on smaller volume products is, by definition, greater.

The data used in this analysis suggest that these two primary factors are relevant in the case of small architectural coating producers. The average VOC content of the products made by the small business producers in the survey is 75 percent higher than the average VOC content of all products combined (see Table ES-6). A little over half of the difference in the averages is attributed to the specialization of small producers in high-VOC content product categories, with the remainder attributed to the tendency for small businesses to produce higher VOC products within each product group. Moreover, the average product volume of products made by small

businesses is less than 20 percent of the average product volume for the entire survey population, implying much larger average reformulation costs (see Table ES-7). Thus, without mitigating factors, the impacts on some small businesses are potentially significant.

TABLE ES-6. BASELINE VOC CONTENT

Size Category ^a	VOC Emissions (Mg)	Sales (kL)	Average VOC Content (g/L)
All products	344,059	1,853,623	186
Small business products	21,431	65,914	325

^a The survey had 116 respondents and 36 of those identified themselves as having under \$10 million in annual sales. Twelve survey respondents did not report company size.

Source: Industry Insights. Architectural and Industrial Maintenance Surface Coatings VOC Emissions Inventory Survey. Prepared for National Paint and Coatings Association in cooperation with the AIM Regulatory Negotiation Industry Caucus. Final Draft Report. 1993.

At proposal, the Agency included specialized coating categories and limits designed to preserve niche product markets. To evaluate whether further steps were still needed to accommodate niche market coatings, the Agency requested that commenters identify any additional specialty coatings that would not comply with applicable VOC content requirements. The Agency also requested comment on whether to include an “exceedance fee” in the final rule, which would allow companies the option of paying a fee, based on the amount that VOC content limits are exceeded, instead of achieving the limit. In addition, the Agency requested comment on the concept of a low volume cut-off, under which a coating might be exempt from regulation. In the final rule, the Agency has included the exceedance fee compliance option and a provision that enables each manufacturer to claim as exempt a specified amount of VOC per year (known as the tonnage exemption). Also, in response to public comments, the Agency created seven new niche product categories and increased the VOC content limits for four product categories in the final rule. The Agency also added an extended period for compliance after promulgation to allow additional time for reformulations. These provisions are designed to mitigate rule impacts on small businesses’ low production volumes and to allow for the preservation of several niche

markets. However, based on the limited data available to the Agency, only the mitigating impact of exceedance fees can be quantified.

The analysis shows that, when reformulation is the only option for compliance, the cost/revenue ratio is estimated to be 2.5 percent on average (see Table ES-7). When the alternative compliance options of the exceedance fee or product withdrawal are considered, the ratio decreases to 2.0 percent (see Table ES-8). This ratio would decrease further if the cost effects of the additional niche product categories, use of the tonnage exemption, and reduction in cost to reformulate due to resin supplier assistance could be specifically quantified.

TABLE ES-7. AVERAGE REGULATORY IMPACT BY FIRM SIZE—
“REFORMULATION-ONLY” SCENARIO^a

	Industry Average	Small Firm Average
Revenue ^b (\$1991)	38,990,000	4,614,000
Number of products ^b	42.4	27.5
Number of products facing major reformulation ^c	9.9	7.8
Annualized reformulation cost ^d (\$1991)	144,272	113,669
Ratio of annualized reformulation cost to revenues (percent)	0.4	2.5

^a The survey has 116 respondents and 36 of those identified themselves as having under \$10 million in annual sales. Twelve survey respondents did not report company size.

^b Data for revenues and products per firm were based on data reported in Table 6-1. The number of products per firm is based on the total number of products for which quantity data are available.

^c This number represents two-thirds of the products over the 1998 TOS. Industry experts estimate that approximately two-thirds of the products with VOC contents exceeding the TOS limits face a “major” reformulation.

^d Annualized cost of reformulation is the number of major reformulations multiplied by the annualized reformulation cost estimate per product of \$14,573 (\$1991).

Source: Industry Insights. Architectural and Industrial Maintenance Surface Coatings VOC Emissions Inventory Survey. Prepared for National Paint and Coatings Association in cooperation with the AIM Regulatory Negotiation Industry Caucus. Final Draft Report. 1993.

The Agency prepared analyses to support both the proposed and final rules that are equivalent to those required by the Regulatory Flexibility Act (RFA) as modified by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA). The Agency undertook these analyses

because of the large presence of small entities in the architectural coatings industry and because the initial impact analysis indicated that there could be a significant economic impact on a substantial number of small entities if mitigating regulatory options were not adopted for the rule. After evaluating public comment on the proposed mitigating options, EPA made a

TABLE ES-8. AVERAGE REGULATORY IMPACT FOR SMALL COMPANIES—“BEST-RESPONSE” SCENARIO

Compliance Strategy	Percent of All Constrained Survey Products Selecting Option	“Expected” Number of Products Selecting Strategy ^a	Average Compliance Cost per Product (\$1991)	Compliance Cost (\$1991)
Reformulate	60.5%	4.7	14,573	68,767
Fee	35.5%	2.8	7,197 ^b	19,936
Withdrawal	4.0%	0.3	12,705 ^c	3,955
Total	100.0%	7.8	11,879	92,658
Average percent of sales				2.0%

^a Equals average number of constrained products for small companies (7.8) multiplied by percentage of all constrained products in the survey selecting each strategy.

^b Average fee cost computed by taking the average fee rate (\$0.084/L), multiplying by the average size per small company product (65,914 L), and adding the recordkeeping cost per product of \$590.

^c Equals the average value of foregone profits for the 46 surveyed products that select the fee as the best-response strategy.

number of changes to the proposed rule to further mitigate the rule’s small business impacts. As a result, the Agency believes that it is highly unlikely that the rule will have a significant economic impact on a substantial number of small entities. However, in light of the Agency’s inability to quantify the effect of the mitigating options, the EPA has elected to conduct a regulatory flexibility analysis and to prepare a SBREFA compliance guide to eliminate any potential dispute on whether EPA has fulfilled SBREFA requirements.

ES.7 EPILOGUE

Because regulatory development is an evolving process, the final Table of Standards for VOC content limits differs slightly from the interim Table of Standards used in the analysis reported here. The main difference between the two sets of standards is the addition of seven new categories in the final standards and an increase in the VOC content limits for three categories.

By and large, new categories were added to accommodate specialty products that were previously included in other categories with lower VOC limits. As a result, some products that

would be over the limit in the previous category, thereby necessitating a compliance action (reformulate, fee payment, withdrawal), are no longer constrained by the regulation. Therefore, in most cases the addition of the new categories reduces the number of required compliance actions and, as a result, also cuts compliance costs. In addition, raising the VOC limits in the other categories reduces compliance actions and costs as well.

However, one of the new product categories, concrete curing and sealing (CCS) compounds, applies to products that were considered outside of the regulated universe in the economic analysis presented in this report. Therefore, the costs associated with the compliance actions required for those products are not estimated in the analysis. If they were, the cost estimate would be larger.

Data were available to approximate cost effects for only two of the seven new product categories. One of these was the CCS category, which allowed for an estimate of the corresponding increase in costs just described. The other new product category for which data were obtained is zone markings. The original 1991 emissions inventory provided data to analyze the cost reductions due to the increase in content limits for three product categories. Taken together, the available data allowed for quantification of a \$580,000 (1991 dollars) net increase in the estimate of annual social costs. However, this increase in cost must be considered against the unquantified decrease in costs from the expected fall in compliance activity in the five other new categories for which data were unavailable. Without additional data, it is difficult to conclude whether the cost reductions from those categories will together outweigh the net cost increases quantified. Given that the social cost effects quantified here are less than 3 percent of the total estimated social costs of the regulation, factors that reduce (or reverse the sign) of these costs lead to the conclusion that the total social cost estimate is not greatly affected by the differences between the interim standards used in the analysis and the final standards issued in the rule.