VII.

Technological and Commercial Feasibility of the Proposed Reactivity Limits

In this Chapter, Air Resources Board (ARB) staff explains the statutory requirements regarding technological and commercial feasibility and our rationale for why we believe the proposed amendments meet these criteria. Health and Safety Code section 41712 requires all consumer product regulations adopted by the Board to be "technologically and commercially feasible." Before providing our interpretation of the statutory criteria regarding technological and commercial feasibility, and why we believe the proposed limits will result in products that meet these criteria, we describe the process to set the proposed limits.

A. Process of Setting Proposed Reactivity Limits

Typically, when volatile organic compound (VOC) limits are proposed for a particular consumer product category, the available technologies, cost, total VOC content, and complying marketshares are used as guiding factors to determine technologically and commercially feasible VOC limits. This was the case when the staff proposed, and the Board adopted the January 1, 2002, revised VOC limits for aerosol coatings. These mass-based VOC limits are designed to achieve a reduction in VOC emissions of about 3.1 tons per day. However, at that time, it was acknowledged that the limits did present a particularly difficult reformulation challenge for water-based coatings (ARB, 1998a).

We are now proposing to amend the Aerosol Coatings Regulation by replacing the January 1, 2002, VOC limits with reactivity-based limits that achieve an equivalent air quality benefit. In developing the proposed reactivity limits, our goal was to propose limits that ensure that the ozone reduction associated with the mass limits would be preserved, while maintaining the already demonstrated technological and commercial feasibility of them. Overall, staff believes this proposal achieves this goal at potentially less cost.

B. Technological and Commercial Feasibility

1. Technologically Feasible

Health and Safety Code section 41712(d) requires the Board to adopt consumer product regulations that are "technologically feasible." Technological feasibility is a different concept than "commercial feasibility," and does not take into account the cost of the complying product. The staff believes that a proposed limit is technologically feasible if it meets at least one of the following criteria: (1) the limit is already being met by at least one product within the same

category, or (2) the limit can reasonably be expected to be met in the time frame provided through additional research and development efforts.

The proposed limits result in significant complying marketshares in all aerosol coatings categories except corrosion resistant brass, bronze, or copper coatings; and glass coatings. As compared to the January 1, 2002, mass-based VOC limits, in 14 categories the complying marketshares increased over those determined for the mass-based VOC limits. For an additional 15 categories the complying marketshares are the same as for the January 1, 2002, mass-based VOC limits. However, lower complying marketshares were determined for four "specialty coating" categories: 1) vinyl, fabric, leather, polycarbonate coatings; 2) metallic coatings; 3) floral coatings; and, 4) hobby, model craft coatings: clear or metallic. In these categories the complying marketshares for products meeting the reactivity limits range from 23 to 87 percent, indicating that the proposed limits are still technologically feasible. We also note that in most cases water-based aerosol coating products, defined as formulated with water and dimethyl ether, easily comply with the proposed reactivity limits.

As mentioned above, two categories currently have no complying products. However, in the case of glass coatings, products representing 65 percent of the market are within about 10 percent of being able to comply with the proposed reactivity limit. In the case of corrosion resistant brass, bronze, or copper coatings; we note that there were no complying products in this category when the January 1, 2001, VOC limits were adopted. However, by using "cross-over technology" from other categories with significant complying marketshares, we believe the limits appear to be feasible. The flexibility allowed by "substituting" rather than "replacing" VOCs should allow multiple reformulation options for these categories. We are proposing to delay the effective date for the "specialty coating categories until January 1, 2003. This additional time should also aid in allowing efficacious products to be developed.

Given the reasonable complying marketshares in most categories, staff concludes that the criterion to set "technologically" feasible limits has been met. Table VII-1 shows the number of complying products and complying marketshares at the proposed reactivity limit for each aerosol coating category.

2. Commercially Feasible

Health and Safety Code section 41712(d) also requires the Board to adopt consumer product regulations that are "commercially feasible." The term "commercially feasible" is not defined in State law. In interpreting this term, staff has utilized the reasoning employed by the United States Court of Appeals for the District of Columbia in interpreting the federal Clean Air Act. In the leading case of International Harvester Company *vs.* Ruckelshaus, (D.C. Cir. 1973) 478 F. 2d 615, the Court held that the United States Environmental Protection Agency could promulgate technology-forcing motor vehicle emission limits which might result in fewer models and a more limited choice of engine types for consumers, as long as the basic market demand for new passenger automobiles could be generally met.

Following this reasoning, the staff has concluded that a regulation is "commercially feasible" as long as the "basic market demand" for a particular aerosol coating product can be met. "Basic market demand" is the underlying need of consumers for a product to fulfill a basic,

necessary function. This must be distinguished from consumer "preference," which may be towards specific attributes of a particular product.

We believe our proposed reactivity limits meet the criteria for commercial feasibility because:

1. complying products, using both water-based and solvent-based technologies, are already available in nearly all of the product categories, as stated above;
2. several compliance options are available to the industry, providing flexibility to manufacturers when reformulating their products;
3. the reformulation options are cost-effective, as explained in detail in Chapter XI; and
4. we are proposing 35 individual limits such that the different types of aerosol coatings will continue to be available to consumers.

Given the reasonable complying marketshares in most categories, and the variety of products that are able to comply using various solvent systems and technologies, staff believes the proposed reactivity limits to be both technologically and commercially feasible. Multiple reformulation options allow flexibility in the design of compliant products, ensuring that efficacious, cost-effective products will continue to be sold and used in California. General reformulation options are explained in Chapter VIII.

TABLE VII-1
PROPOSED REACTIVITY LIMITS AND COMPLYING MARKETSHARES

Product Category	Proposed Reactivity Limit (g O_3/g product)	Number Complying Products	Percent Complying Products	Complying Marketshare (Percent)
Clear Coatings	1.54	45	38	45
Flat Paint Products	1.21	26	22	11
Fluorescent Coatings	1.77	44	86	64
Metallic Coatings	1.93	54	33	27
Nonflat Paint Products	1.40	302	38	36
Primers	1.11	31	20	29
Art Fixatives or Sealants	1.80	7	47	47
Auto Body Primers	1.57	12	63	64
Automotive Bumper and Trim Products	1.75	34	49	73
Aviation or Marine Products	1.98	<10	100	100
Aviation Propeller Coatings	2.47	<10	100	100

(continued on next page)

TABLE VII-1 Continued
PROPOSED REACTIVITY LIMITS AND COMPLYING MARKETSHARES

Product Category	Proposed Reactivity Limit (g O_3/g product)	Number Complying Products	Percent Complying Products	Complying Marketshare (Percent)
Corrosion Resistant Brass, Bronze, or Copper Coatings	1.78	0	0	0
Exact Match Finishes: Engine Enamel	1.72	8	28	72
Exact Match Finishes: Automotive	1.77	276	87	62
Exact Match Finishes: Industrial	2.07	30	94	99
Floral Sprays	1.68	13	81	87
Glass Coatings	1.42	0	0	0
Ground Traffic/Marking Coatings	1.18	64	58	24
High Temperature Coatings	1.83	28	43	42
Hobby/Model/Craft Coatings: Enamel	1.47	32	94	94
Hobby/Model/Craft Coatings: Lacquer	2.70	<10	40	60
Hobby /Model Craft Coatings: Clear or Metallic	1.60	13	76	34
Marine Spar Varnishes	0.87	<10	100	100
Photographic Coatings	0.99	<10	50	39
Pleasure Craft Finish Primers, Surfacers or Undercoaters	1.05	<10	100	100
Pleasure Craft Topcoats	0.59	<10	100	100
Shellac Sealers: Clear	0.98	<10	100	100
Shellac Sealers: Pigmented	0.94	<10	100	100
Slip-Resistant Coatings	2.41	7	100	100
Spatter/Multicolor Coatings	1.07	12	55	89
Vinyl/Fabric/Leather/ Polycarbonate	1.54	16	80	31
Webbing/Veil Coatings	0.83	<10	100	100
Weld-Through Primers	0.98	<10	38	67
Wood Stains	1.38	<10	100	100
Wood Touch-Up, Repair or Restoration Coatings	1.49	<10	>60	>90

REFERENCES

California Air Resources Board (1998a). Initial Statement of Reasons for the Proposed Amendments to the Regulations for Reducing Volatile Organic Compound Emissions from Aerosol Coatings, Antiperspirants and Deodorants, and Consumer Products. October 2, 1998.