

Appendix I

EMISSIONS CALCULATIONS FOR ARCHITETURAL COATINGS

The emissions baseline is calculated by:

$$VOC_{Actual} \times Total\ Sales \times \frac{3.785}{454 \times 2000 \times 3.65}$$

Where:

- VOC Actual is the weight of VOC in a coating, not the regulatory limit, expressed in grams/liter
- Sales expressed in gallons
- 3.785 is liters/gallon
- 454 is grams/pound
- 2000 is pounds/ton

Emission credits in tons/day = existing emissions from survey data – new emissions for each category of coating:

$$sales > quarts \times 880 \times \left[\frac{VOC_{Actual}}{880} - \left(\frac{VOC_{Regulatory\ New} \times \frac{\% \text{ by volume solids}}{100}}{880 - VOC_{Regulatory\ New}} \right) \right] \times \frac{3.785}{454 \times 2000 \times 3.65}$$

Where:

- Sales > quarts is because coatings in quart containers are exempt from Rule 3
- 880 is the EPA standard for assumed VOC density in grams/liter
- VOC_{Regulatory} is the VOC limit stated in grams/liter
- Assumes % volume solids remains constant for existing and for reformulated coatings. Also, sales are assumed to remain constant¹

¹ “Emission Reduction Calculation Methodology for Architectural Coatings, CARB, Jaczola, Mike, 10/03/01

Bay Area Emission Reductions Attributable to the SCM, by category:

Flats, 0.49
 Nonflats, 0.41
 Lacquers, 0.36
 Primers, sealers and undercoaters, 0.22
 Quick dry enamels, 0.35
 Quick dry primers, sealers and undercoaters, 0.35
 Stains, 0.22
 Swimming Pool Repair and Maintenance, 0.01
 Wood waterproofing sealers, 0.14²

Industrial Maintenance Coating Adjustment:

Scenario 1, IM coating VOC limit 420 g/l to 250 g/l, VOC reduction = 1.04 ton/day
 Scenario 2, IM coating VOC limit 420 g/l to 340 g/l, VOC reduction = 0.44 ton/day

IM coating 340 g/l allowance limited to 5 % of annual emission reductions achieved from implementing the January 2004 Industrial maintenance coating limit. Therefore;

$1.04 \text{ tons/day} \times 95\% + 0.44 \text{ tons/day} \times 5\% = 1.01 \text{ tons/day}$, IM reduction

Total SCM reductions, not including IM coating = 2.55 tons/day

Total reductions = SCM reductions + IM reductions + Nat'l rule reductions;

$2.55 \text{ tons/day} + 1.01 \text{ tons/day} + 0.23 \text{ tons/day} = 3.79 \text{ tons/day}$

Population Adjustment:

CARB population figure for Bay Area = 35.10% of California, excluding South Coast
 ABAG population figure for Bay Area³ = 34.7% of California, excluding South Coast

Therefore;

$3.79 \text{ tons/day} \times .347/.351 = 3.75 \text{ tons/day}$, emission reduction; these amendments

² Bay Area SCM Reductions, CARB, Jaczola, Mike, 10/01/2001

³ Association of Bay Area Governments figure, 2001, Schultz, Stuart, BAAQMD