4.2.1 Nonindustrial Surface Coating[1,3,5]

Nonindustrial surface coating operations are nonmanufacturing applications of surface coating. Two major categories are architectural surface coating and automobile refinishing. Architectural surface coating is considered to involve both industrial and nonindustrial structures. Automobile refinishing pertains to the painting of damaged or worn highway vehicle finishes and not to the painting of vehicles during manufacture.

Emissions from coating a single architectural structure or an automobile are calculated by using total volume and content and specific application. To estimate emissions for a large geographical area which includes many major and minor applications of nonindustrial surface coatings requires that area source estimates be developed. Architectural surface coating and auto refinishing emissions data are often difficult to compile for a large geographical area. In cases where a large emissions inventory is being developed and/or where resources are unavailable for detailed accounting of actual coatings volume for these applications, emissions may be assumed proportional to population or to number of employees in the activity. Table 4.2.1-1 presents factors from national emission data and gives emissions per population or employee for architectural surface coating and automobile refinishing.

Table 4.2.1-1 (Metric And English Units). NATIONAL EMISSIONS AND EMISSION FACTORS FOR VOC FROM ARCHITECTURAL SURFACE COATING AND AUTOMOBILE REFINISHING[a]

EMISSION FACTOR RATING: C

Emissions	Architectural Surface Coating	Automobile Refinishing
National		
Mg/yr (ton/yr)	446,000 (491,000)	181,000 (199,000)
Per capita		
kg/yr (lb/yr)	2.09 (4.6)	0.84 (1.9)
g/day (lb/day)	5.8 (0.013)[b]	2.7 (0.006)[c]
Per employee		
Mg/yr (ton/yr)	ND	2.3 (2.6)
kg/day (lb/day)	ND	7.4 (16.3)[c]

[a] References 3,5-8. All nonmethane organics. ND = no data.
[b] Reference 8. Calculated by dividing kg/yr (lb/yr) by 365 days and converting to appropriate units.
[c] Assumes a 6-day operating week (312 days/yr).

Using waterborne architectural coatings reduces VOC emissions. Current consumption trends indicate increasing substitution of waterborne architectural coatings for those using solvent. Automobile refinishing often is done in areas only slightly enclosed, which makes emissions control

difficult. Where automobile refinishing takes place in an enclosed area, control of the gaseous emissions can be accomplished by the use of adsorbers (activated carbon) or afterburners. The collection efficiency of activated carbon has been reported at 90 percent or greater. Water curtains or filler pads have little or no effect on escaping solvent vapors, but they are widely used to stop paint particulate emissions.

References For Section 4.2.1

1. *Air Pollution Engineering Manual*, Second Edition, AP-40, U. S. Environmental Protection Agency, Research Triangle Park, NC, May 1973. Out of Print.

2. *Control Techniques For Hydrocarbon And Organic Gases From Stationary Sources*, AP-68, U. S. Environmental Protection Agency, Research Triangle Park, NC, October 1969.

3. *Control Techniques Guideline For Architectural Surface Coatings (Draft)*, Office Of Air Quality Planning And Standards, U. S. Environmental Protection Agency, Research Triangle Park, NC, February 1979.

4. *Air Pollutant Emission Factors*, HEW Contract No. CPA-22-69-119, Resources Research Inc., Reston, VA, April 1970.

5. *Procedures For The Preparation Of Emission Inventories For Volatile Organic Compounds, Volume I*, Second Edition, EPA-450/2-77-028, U. S. Environmental Protection Agency, Research Triangle Park, NC, September 1980.

6. W. H. Lamason, "Technical Discussion Of Per Capita Emission Factors For Several Area Sources Of Volatile Organic Compounds", Technical Support Division, U. S. Environmental Protection Agency, Research Triangle Park, NC, March 15, 1981. Unpublished.

7. *End Use Of Solvents Containing Volatile Organic Compounds*, EPA-450/3-79-032, U. S. Environmental Protection Agency, Research Triangle Park, NC, May 1979.

8. Written communications between Bill Lamason and Chuck Mann, Technical Support Division, U. S. Environmental Protection Agency, Research Triangle Park, NC, October 1980, and March 1981.