SAN DIEGO AIR POLLUTION CONTROL DISTRICT
SMALL BUSINESS ASSISTANCE

VOLATILE ORGANIC COMPOUND (VOC) CALCULATIONS

HOW TO CALCULATE VOLATILE ORGANIC COMPOUND (VOC) CONTENT
WHEN NO WATER OR EXEMPT COMPOUNDS ARE PRESENT

In order to demonstrate compliance with the VOC standards of District rules you need to be able to calculate the VOC content of multi-component coatings (materials). VOC content is expressed as the weight of VOC contained in a specific volume of material (lbs/gallon or grams/liter). You will need to know the mix ratio for the components and the VOC content of each component.

Example: Four parts of a coating are mixed with one part catalyst and one part reducer (mix ratio is 4:1:1) (total # of parts = 4 + 1 + 1 = 6).

The VOC content of the coating (paint) is 4.0 lbs/gallon. (VOCp)
The VOC content of the catalyst is 5.0 lbs/gallon. (VOCc)
The VOC content of the reducer is 6.0 lbs/gallon. (VOCr)

To calculate the VOC content of the mixed coating use the following formula:

$$\frac{(\text{\# parts paint} \times \text{VOCp}) + (\text{\# parts catalyst} \times \text{VOCc}) + (\text{\# parts reducer} \times \text{VOCr})}{\text{total \# of parts}}$$

$$\frac{(4 \text{ parts paint} \times 4 \text{ lbs/gallon}) + (1 \text{ part catalyst} \times 5 \text{ lbs/gallon}) + (1 \text{ part reducer} \times 6 \text{ lbs/gallon})}{6 \text{ parts}}$$

$$= \frac{16 \text{ lbs/gallon} + 5 \text{ lbs/gallon} + 6 \text{ lbs/gallon}}{6} = 4.5 \text{ lbs/gallon VOC as applied}$$

Note: This calculation applies to coatings and coating components that do not contain water or exempt compounds. Check manufacturer's data sheets to determine if the products being used contain water or exempt compounds. A separate calculation must be used for coatings if they do contain water and/or exempt compounds. For assistance contact the coating manufacturer, the Districts' Small Business Assistance Specialist, or visit the Business Assistance, Small Business Assistance page of the APCD website at http://www.sdapcd.org/.