Calculating True Costs of Paints & Coatings

Determine Costs per Volume of Paint Solids versus Price per Gallon

If you simply look at price per gallon, alternative coatings often seem more expensive. Price per gallon, however, does not tell the whole story. You can only determine true costs by calculating coating costs per unit of painted product. Once this calculation is completed, you can make a more informed decision on whether to purchases a substitute coating product.
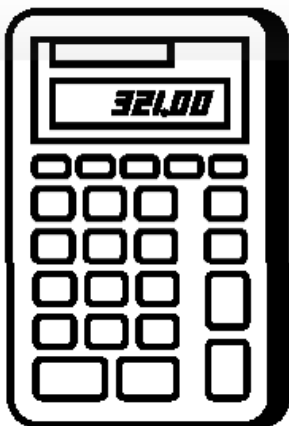
Step 1: Figure Cost of Paint Solids

Conventional solvent-based liquid paints include both volatile and solid components. When the paint is applied, the volatile components evaporate and the solids are left behind on the surface of your product.

The cost of that solid fraction is what you need to figure to accurately compare the costs of coating products. The cost of the solid fraction can be calculated from information provided in the product's Material Safety Data Sheet (MSDS) or Product Data Sheet (PDS), which are available from the manufacturers. The paint's total per-gallon cost is divided by the solids percentage to obtain the cost per gallon of solids.

Example

If a paint product costs $15 per gallon and contains 33% solids, then you would divide 15 by 0.33.
So, 15 / 0.33 = $45.45, the cost per gallon of paint solids.

Step 2: Figure Ideal Paint Cost per Square Foot

If a desired thickness is known, this cost can be further refined into a cost per unit of painted surface area using the following formula:

(Cost of paint solids per gallon) X (film thickness in millimeters) X (0.0006233)

Example

($45.45 per gallon of paint solids) X (2 miles finished film thickness) X (0.0006233 conversion factor) = 5.7 cents per square foot, assuming an ideal 100% transfer efficiency.

Step 3: Figure Actual Paint Cost per Square Foot

100% transfer efficiency is almost never achieved when applying liquid coatings with spray equipment. To calculate a more accurate cost of using a liquid coating, the transfer efficiency of the application equipment and paint product must be considered. In most spray painting operations, only a portion of the product that is sprayed actually reaches the surface to be coated. The remainder, or overspray, is collected in the paint booth exhaust filter or settled to the floor of the paint area. The amount of paint reaching the product versus the total amount of paint sprayed is referred to as the transfer efficiency. To calculate the actual costs of paint per square foot of applied finish, the estimated transfer efficiency of the paint operation must be factored into the cost formula as follows:

Ideal (100% transfer efficiency) paint cost per square foot + transfer efficiency percentage = actual paint cost per square foot.

Example

A paint operation has an estimated transfer efficiency of 50%. Take the 5.7 cent calculated for 100% transfer efficiency and divide by 0.50 to deter-mine actual coating cost. (5.7 cents per square foot) / (0.50 transfer efficiency) = 11.4 cents per square foot.

Step 4: Figure Total Cost of Painting Manufactured Product

Now that a cost estimate per square foot has been determined, you can apply this figure to an estimated cost per painted part.

Example

A flat panel part has an area of 10 square feet. Multiply your cost per square foot times the square footage of the part. (11.4 cents per square foot) X (10 square feet) = $1.14 per part. (Note: For parts that are oddly configured, estimate square foot-age.)

More Information For more information about surface coating or any other air quality requirements, please contact Yakima Regional Clean Air Agency, 509-834-2050 or www.yakimacleanair.org

Calculations courtesy of Pollution Prevention Resource Council www.pprc.org/pubs/factsheet/coatcost.html

* Original document information provided by Spokane Regional Clean Air Agency