

POLLUTION PREVENTION

IN RHODE ISLAND

Case studies of the Rhode Island On-Site Technical Assistance Program

Marina VOC's

Boatyard switches to High Volume Low Pressure (HVLP) spray guns for application of laminating resin, gel coat, and epoxy primers and saves material while reducing emissions of volatile organic compounds (VOCs).

Industry \ Contact

SIC Code: 4493 Marina, Rhode Island

Contact: RI Port Authority Marine Trade Pollution Prevention Research Project- Client #7

Technology Description

The Company is a boatyard facility that provides full maintenance and repair services to various sizes of fiberglass and wood recreational and charter vessels. Services include engine, electrical, and auxiliaries maintenance, painting, fiberglass repairs, woodworking pressure washing, winterization and storage of vessels. The facility has been in operation for 14 years and employs 20 full-time employees and 1 part-time employee. Approximately 125 vessels are serviced at the facility annually and are, on the average, about 30 to 75 feet in length.

The Company has entirely switched to HVLP technology for application of laminating resin and gel coat. The application of all epoxy primers and a limited amount of top coating are also done with HVLP spray equipment.

Feedstock Materials

Laminating resins (\$1.09/lb) gel coats (\$1.25/lb), and epoxy primers (\$63.60/gal).

Costs

Binks Century HVLP Spray Gun (Model #102-2400) and chopper assembly costs approximately \$1,750 (\$850 for the gun alone) and is used for laminating resin and gel coat.

Devilbiss (Model #JGHV-530) costs approximately \$350 and is used for epoxy primers.

Operation \ Maintenance

The deposition rate of the epoxy primer gun is somewhat slower than a conventional spray gun, requiring more passes to achieve the same mil thickness. Maintenance issues are similar to other spray technologies.

The laminating/gel coating gun has the same deposition rate as airless spray equipment, catalyzes the material very well, and has excellent response to operator adjustments. Maintenance issues are also similar to other spray technologies.

Savings

The laminating/gel coating gun demonstrates a 10-15% savings in material. The epoxy primer gun demonstrates a 15-20% savings in material.

Since VOC reduction is directly tied to material usage, a savings in material will directly result in mitigation of the VOC waste stream.

Payback Projections

Based on the reported levels of feedstock reduction the following payback projections are made in terms of total usage:

Binks Gun and Chopper - 17 drums (935 gal) drums of laminating resin

Binks Gun - 7 drums (385 gal) of gel coat

Devilbiss Gun - 31 gallons of epoxy primer

Impact

The change to HVLP technology has resulted in a less wasteful process that liberates less VOCs to the environment. The savings in materials represent a justification for a technology change based on payback projections.

Rhode Island is implementing a flat fee for facilities that produce less than ten tons of VOCs per year. There is an incrementally higher fee for facilities producing in excess of ten tons, which provides an incentive for facilities approaching the ten ton plateau to employ technologies which produce less VOCs.