

Cautions

- ! reduce spray pattern
- ! relatively poor atomization
- ! expensive nozzles
- ! coatings limitation
- ! tip plugging
- ! danger of skin injection
- ! increase training and maintenance

Air-Assisted Airless Spray

Air-assisted airless spraying combines compressed air atomization with airless atomization. About 85 percent of the atomization of the coating is provided by fluid pressure (150-800 psi) as in airless, and the remaining 15 percent is provided by air pressure (5-30 psi) supplied at the nozzle.

Benefits

- ! high transfer efficiency relative to conventional (40-70 percent)
- ! finish comparable to conventional spray
- ! reduce material usage
- ! less overspray and bounce back

Cautions

- ! not compatible with some coatings
- ! risk of skin injection
- ! increase maintenance
- ! increase operator training
- ! capital cost

Electrostatic Technology

During electrostatic coating, coating particles are given a negative electric charge and the piece to be finished is either grounded or is given a positive charge. This electrostatic action causes the coating particle to be drawn to the piece creating a high transfer efficiency of 35-70 percent for spray guns, and 60-90 percent for rotary disk (centrifugal force) applicators. This allows each piece to be coated with fewer passes and less coating material and associated waste. The particle velocity and electrostatic charge must be balanced to achieve optimum coating.

Benefits

- ! high transfer efficiency
- ! reduce material usage and associated VOC emissions and waste
- ! uniform film thickness

Henredon Furniture Case Study

Morgantown, North Carolina

Henredon converted from Spray guns to HVLP equipment (7-10 psi) for applying lacquers, sealers, and stains to chairs and benches. Spray operators received on-site training.

The company realized a \$120,000 annual savings from a 15 percent reduction in coating usage. Product quality improved without impact to line speed and VOC emissions were reduced by over 126,000 lbs. Spray gun purchase and installation ranged from \$350-\$500 per gun. Payback period was 3.5 months.

Source: D.B. Williams, "Incentives and Techniques for Pollution Prevention in Furniture Coating Operations," presented at The Furniture Industry and the Environment, Hickory, N.C., November 19, 1992.

Thomson Crown Wood Products Case Study

Mocksville, North Carolina

Wood and wood finished television cabinets are manufactured by Thomson Crown. Parts of these cabinets were coated with air-assisted airless spray guns (high air pressure up to 55 psi) with a poor transfer efficiency and a high generation rate of VOC emissions and coating waste. HVLP spray guns were purchased to replace the existing guns.

Material reductions of 65 percent for equalizer, 65 percent for toner, 35 percent for glaze, 35 percent for no-wipe, and 53 percent for water-based black finishes that total 13,300 gallons per year have been realized with an estimated savings of \$137,000. The cost of the project was \$21,000.

Source: *Pollution Prevention for the Wood Finishing Industry*, U.S. EPA/SEDESOL Pollution Prevention Workgroup, May 1994.