

### **3.17.1 Wood Products Industry: Wood Finishing**

*Tip Sheet #1*

**WASTE ORIGIN:** Wood Finishing

**WASTE TYPES:** Volatile Organic Compound (VOC) Air Emissions, Liquid Wastes (Spent Stains, Wash Coats, Fillers, Sealers, Glazes, Topcoats, Solvents, and Spray Booth Wastewater)

**WASTE REDUCTION AND RECYCLING METHODS:**

- ! Use **waterborne**, or “hybrid” coatings with a combination of water and conventional solvents.
- ! Use **high solids solvent-based coatings** with a high solids concentration range of 35-40 percent. Three basic types of high-solids coatings are: two-component ambient temperature cured, one-component heat converted, and high-solids thermoplastic solvent borne coatings.
- ! Use **polyester/polyurethane-based coatings** including styrene derived polyester of 100 percent solids cured by ultraviolet (UV) radiation, and acrylic polyester (30-50 percent solids) which are cured by catalytic reaction or UV radiation.
- ! Use **carbon dioxide-based coatings** to decrease viscosity and enhance atomization. Replace all or most of the solvents used in the conventional spray coatings application.
- ! Use **radiant cure coatings**, such as acrylate-based materials and epoxies, and either UV, electron beam (EB), or infrared (IR) radiation for rapid polymerization.
- ! Use **high volume, low pressure (HVL) spray guns** to reduce overspray, less bounce back, and better transfer efficiency (40-70 percent).
- ! Use **airless spray systems** to atomize the coating without introducing a pressurized air flow.
- ! Use **air-assisted airless spray** to combine compressed air atomization with airless atomization.
- ! Use **electrostatic technology** to create a high coating transfer efficiency of 35-70 percent for spray guns, and 60-90 percent for rotary disk (centrifugal force) applicators.
- ! Use **vacuum coating technology** for maximum coating efficiency and almost total elimination of waste coating and VOC emissions.
- ! Use a **dip coating system** for excellent transfer efficiency and reduced wastes.
- ! Use **flow coating** technology to direct the coating at the surface of the wood for high transfer efficiency and reduced wastes.
- ! **Curtain coating systems** allow controlled rates of material flow and excess coating material is trapped in a reservoir and recirculated with minimal waste.
- ! **Roll coating** applies rollers to a flat wood surface for high transfer efficiency while allowing the use of high solids coatings. It also lends itself to UC or EB curing.

**Source:**

*Pollution Prevention for Wood Finishing and Manufacturing*, University of Wisconsin-Extension, Solid and Hazardous Waste Education Center, December 1994.

*Pollution Prevention in the Finishing of Wood Furniture*, Commonwealth of Virginia, Department of Environmental Quality, Waste Reduction Assistance Program, October 1993.