

WORKSAFE MINNESOTA Handout on Spray Finishing Rules

Background: The Occupational Safety and Health Administration (OSHA) has rules which cover spray finishing operations. The OSHA rules focus on controlling two hazards of spray finishing operations. First, fire is the hazard most thoroughly addressed in the OSHA rules. Second, employee exposure to toxic chemicals is also briefly addressed in the OSHA rules.

Disclaimers: This handout is only a general description of the OSHA rules. For detailed information, please see the OSHA regulations at 29 CFR 1910. Specific regulations which apply to spray finishing operations are found at 29 CFR 1910.94(c) and 1910.107. Minnesota OSHA may be reached at (651) 296-2116.

Local ordinances and state fire codes may also affect spray finishing operations. Contact the local fire inspector or the State Fire Marshal at (651) 215-0500 for help in understanding fire codes.

Spray finishing operations may produce air pollutants, and trash from spray finishing operations may be considered hazardous waste. For free help with pollution and waste issues, please contact MnTAP (the Minnesota Technical Assistance Program) at 612-627-4646. For assistance with air quality questions contact the Small Business Assistance specialists at the Minnesota Pollution Control Agency. Their number is (651) 282-6143 (or toll free at 1-800-657-3938).

Basics: OSHA regulations for spray finishing cover every production operation which involves coating, treating or cleaning using sprayed-on material. In short, OSHA says the spraying must take place in a spray booth or spray room.

The OSHA spray finishing regulations do not apply to “the spraying of the exteriors of buildings, fixed tanks, or similar structures, nor to small portable spraying apparatus not used repeatedly in the same location” [use of aerosol cans of spray paint, for instance].

Spray Booth Requirements: A spray booth may be small or big (table-top size to walk-in size). Spray booths are designed to contain overspray material, and to pull overspray mist and chemical vapors out of the work area.

The OSHA regulations contain quite a few specifications for spray booth construction. The following is a list of the significant spray booth construction requirements:

- The spray booth structure (walls, floors, ceiling) and exhaust duct work must be made of non-combustible material.
- The interior finish of the spray booth must be easy to clean.
- Special “explosion proof” electrical wiring is required for all wiring within the spray booth. Metal parts of spray booths, exhaust ducts, and piping systems conveying flammable or combustible liquids or aerated solids must be properly electrically grounded. No spark producing or flame producing equipment is to be located within 20 feet of a spray booth.
- Exhaust ventilation must be provided to draw vapors and overspray out of the spray booth. Room temperature air must be supplied to replace the volume of air which goes out the spray booth exhaust.
- The amount of air going through the spray booth must be sufficient to create a breeze of 100 feet per minute going through the front of the booth or past the object being sprayed. There must also be enough air going through the spray booth to dilute solvent vapor to at least 25 percent of the lower explosive limit (the regulation contains information needed to calculate ventilation requirements).

- Equipment in spray booths or in exhaust duct work must not produce sparks or flames which would trigger a fire. Heating equipment must not be located in spray booths, and fan blades must be non-sparking, and served from motors outside of the exhaust vent.
- A pressure gauge is to be installed to show the pressure drop across the booth filters. The pressure gauge should be marked to indicate normal air flow, and to indicate when filters need replacement.
- Fire sprinklers are to be located in the booth and in the exhaust duct for spray operations which use flammable or combustible chemicals.
- The spray booth must be separated from other operations by at least three feet.
- Exhaust from the spray booth must be at least six feet away from any combustible wall or roof, and must be located so it does not contaminate fresh air coming into the building.

The OSHA rules also contain some requirements for operating spray booths:

- Chemicals (paints, etc.) kept near the spray booth must be limited to the amount needed for one shift.
- Employees working at spray operations must stay upwind of the object being sprayed. If employees must be downwind of the object being sprayed (so they are in the path of the overspray), the employee must wear an appropriate respirator. If an employee wears a respirator, additional OSHA requirements pertaining to respiratory protection use apply.
- The employees must not be over exposed to chemicals/vapors from the spray operation. The material safety data sheet for the product being used should list chemicals to be concerned about and the exposure limits for the chemicals. (Remember to consider mixing and clean up operations as well as production operations when assessing employee exposure.)
- Combustible residue must not be allowed to build up on the interior of the spray booth (clean the walls and floor regularly).
- Rags or debris wet with flammable liquid must be disposed of in a covered metal trash container. The trash container must be emptied to an outdoor location once a day. Hazardous waste rules may apply to disposal of rags.
- Transferring flammable or combustible liquid from one container to another requires providing an electrical bonding "strap" or wire between the two containers.
- Spray equipment under air pressure must be provided with a visible pressure gauge and must have a relief valve. In some cases, spray equipment must be "interlocked" with the exhaust ventilation. The interlock prevents spray equipment use unless exhaust ventilation in operation.
- A portable fire extinguisher is to be located near the spray area.
- A no smoking sign is to be posted at all spraying areas and paint storage rooms.

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