Spray Finishing

Reset Form

Self-Inspection Checklist

Optional Information

Name of School:
Date of Inspection:
Career-Technical program/course/room:
Signature of inspector:

Guidelines:

This checklist covers regulations issued by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) under the general industry standards 29 CFR 1910.94 and 1910.107. In addition, this checklist includes questions from the National Fire Protection Associations (NFPA) standards NFPA 1 and 33. The checklist applies to spray-finishing operations involving flammable and combustible liquids such as paint, varnish, lacquer, or stain. This checklist must be used in conjunction with the checklist entitled Flammable and Combustible Liquids. The regulations cited apply only to private employers and their employees, unless adopted by a State agency and applied to other groups such as public employees. Definitions of terms in bold type are provided at the end of the checklist. A answer to a question indicates that this portion of the inspection complies with the OSHA and U.S. Environmental Protection Agency (EPA) standard, or with a nonregulatory recommendation.

Questions marked with this symbol may require the help of an outside expert.

Spray-finishing operations should be conducted only in a room that is protected with an approved fire-suppression system and separated vertically and horizontally from other areas. Undercoating spray operations do not have to comply with this checklist if (1) the area has adequate natural or mechanical ventilation, (2) the local fire official approves of the operation; and (3) the undercoating materials use only solvents having a flash point in excess of 100ºF.

General Requirements		
	1	Are smoking and open flames prohibited in any spray-finishing area? [NFPA 1 and 33]
	2	Are spraying areas posted with a conspicuous sign reading No Smoking? [29 CFR 1910.107(g)(7)]
	3	Is an adequate supply of portable fire extinguishers near all spraying areas? [29 CFR 1910.107(f)(4)]
	4	Are approved metal waste cans with self-closing lids provided wherever rags or waste are impregnated with finishing material? Are all such rags or waste deposited there immediately after use? [NFPA 1 and 33]

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Construction		
	5	Are spray booths substantially constructed with securely and rigidly supported steel, concrete, or masonry? [29 CFR 1910.107(b)(1)]
	6	Are floor and baffle plates in spray booths constructed of noncombustible material? [29 CFR 1910.94(c)(3)(iii)]
	7	Are spray booth interiors smooth and continuous, without edges, and designed to prevent accumulation of residues? [29 CFR 1910.107(b)(2)]
	8	Are spraying operations and booths separated from other operations by at least three feet or a partition or wall to reduce the hazard? [29 CFR 1910.107(b)(8)]
	9	Are spray booths installed so that all portions are readily accessible for cleaning? [NFPA 1 and 33]
	10	When spraying areas are illuminated through glass panels or other translucent materials, are only fixed lighting units used as a source of illumination? [29 CFR 1910.107(b)(10)]
	11	Are all motors, wiring, and lighting fixtures that are not separated by a partition and located within 20 feet from spray finishing operations explosion proof? [29 CFR 1910.94(c)(3) and 1910.107(c)(6)]
	12	Are spray booths interiors protected with an automatic fire sprinkler system? [29 CFR 1910.107(b)(5)(iv)]
	13	Are hot surfaces such as space heaters, appliances, and steam pipes located away from spray-finishing operations? [29 CFR 1910.107(c)(3)]
	14	Are all metal parts of spray booths, exhaust ducts, and piping systems effectively and permanently grounded? [29 CFR 1910.107(c)(9)(i)]

Operations and Maintenance		
	15	Are spray booth interiors free from accumulated deposits? [29 CFR 1910.107(b)(2) and (g)(2)] *Note: Combustible coverings (thin paper, plastic, etc.) and strippable coatings may be used to facilitate cleaning operations.*
	16	Are tools used for scraping residues and debris nonsparking? [29 CFR 1910.107(g)(2)]
	17	Are residue scrapings and debris immediately removed from the premises and disposed of properly? [29 CFR 1910.107(g)(3)]
	18	Are cleaning solvents restricted to those with flash points above 100°F? [29 CFR 1910.107(g)(3)]
	19	Are cleaning operations using flammable or combustible solvents conducted inside spray booths, with the ventilating equipment operating during the cleaning procedure? [NFPA 33]
	20	Are fire sprinkler heads kept free of accumulated deposits? [29 CFR 1910.107(f)(3)]
	21	Are spray booth overspray filters regularly inspected, cleaned, and replaced? [29 CFR 1910.94(c)(3)(iii)(a)]
	22	Are spray booth overspray filters discarded at the end of each day unless maintained completely in water? [29 CFR 1910.107(b)(5)(ii)]
	23	Is at least 3 feet on all sides of a spray booth maintained free of any stored combustible materials? [NFPA 33]

Flammable and Combustible Liquids		
	24	Is only the quantity of flammable or combustible liquids required for one day kept near spraying operations? [29 CFR 1910.107(e)(2)]
	25	Are all flammable and combustible liquids transported in closed containers, approved portable tanks, approved safety cans, or closed piping? [29 CFR 1910.107(e)(3)]
	26	Are all flammable and combustible liquids in containers larger than 60 gallons transferred by means of an approved pump? [29 CFR 1910.107(e)(4)]
	27	Do all containers or pipes attached to flexible hoses have shutoff valves at the connections? [29 CFR 1910.107(e)(6)(i)]

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Flammable and Combustible Liquids		
	28	When flammable liquids are transferred from one container to another, are both containers bonded and grounded? [29 CFR 1910.107(e)(6)(iv)]
	29	Are containers supplying spray nozzles of a closed type, or are they provided with a metal cover? [NFPA 33]
	30	Are containers supplying spray nozzles resting on floors, on noncombustible supports, or suspended by wire cables? [NFPA 33]
	31	Are containers supplying spray nozzles by gravity flow less than 10 gallons? [NFPA 33]
	32	If flammable or combustible liquids are supplied to spray nozzles by positive displacement pumps, is the discharge pressure prevented from exceeding the operating pressure of the system? [NFPA 33]

Ventilation		
	33	Are spraying areas provided with mechanical ventilation that is kept in use during spraying? [29 CFR 1910.107(d)(2)]
	34	Do spraying operations have sufficient ventilation to maintain individual exposures to within acceptable limits? [29 CFR 1910.94(c)(4)(iii)]
	35	Are spray booths designed to sweep air currents toward the exhaust outlet? [29 CFR 1910.107(b)(a)]
	36	Are exhaust ventilation systems well constructed and in good working order? [29 CFR 1910.94(a)(5),(6),(7)]
	37	Is the average velocity of air flowing into the face of spray booths maintained at least 100 feet per minute? [29 CFR 1910.94(c)(6)(i) and 1910.107(b)(5)(i)] *Note: Electrostatic spraying operations may be conducted with an average air velocity of at least 60 feet per minute.*
	38	Are visible gauges, audible alarms, or pressure-activated devices installed to indicate or insure that the required air velocity is maintained? [29 CFR 1910.107(b)(5)(i)]
	39	Are doors to downdraft booths kept closed when the booth is in operation? [29 CFR 1910.94(c)(6)(iii)(b)]
	40	Is clean, fresh makeup air supplied to the area to replace the volume of air exhausted through the spray booth? [29 CFR 1910.94(c)(7)(i)] *Note: If the outdoor air temperature is less than 55°F, makeup air must be heated.*
	41	Do all spray booths have independent exhaust stacks to the outside? [29 CFR 1910.107(d)(3)]
	42	Are all fan-rotating elements constructed of nonferrous or nonsparking materials? [29 CFR 1910.107(d)(4)]
	43	Are electric motors driving the exhaust fans placed outside booths or ducts? [29 CFR 1910.107(d)(5)]
	44	Are belts and pulleys in ducts that are used to drive the fan blades thoroughly enclosed? [29 CFR 1910.107(d)(6)]
	45	Are spray booth exhaust duct terminals located at least six feet from any combustible exterior wall or roof and prevented from discharging in the direction of any combustible construction? [29 CFR 1910.107(d)(8)]
	46	Is spray booth exhaust air directed so that it will not contaminate makeup air or create a nuisance? [29 CFR 1910.107(d)(9)]
	47	Are exhaust ducts fitted with access doors for cleaning? [29 CFR 1910.107(d)(10)]
	48	Are freshly spray-finished articles set to dry in areas with adequate ventilation? If not, are those areas treated as spraying areas? [29 CFR 1910.107(d)(12)]

Electrostatic Apparatus		
	49	Is only approved electrostatic equipment used in connection with paint-spraying operations? [NFPA 33]
	50	Are transformers, power packs, control apparatus, and all other electrical portions of the equipment located outside of the spraying or vapor areas? (with the exception of high-voltage grids and electrostatic atomizing heads and their connection) [NFPA 33]

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Electrostatic Apparatus		
	51	Is a space of at least twice the sparking distance maintained between goods painted and fixed electrodes, electrostatic atomizing heads, or conductors? [NFPA 33] *Note: A suitable sign stating the sparking distance should be posted near the assembly.*
	52	Is electrostatic apparatus equipped with automatic controls that operate without time delay to disconnect the power supply to the high-voltage transformer and to signal the operator under any of the following conditions? [NFPA 33] 1. Ventilating fans stop or ventilation equipment fails. 2. The conveyor carrying goods past the high-voltage grid stops. 3. A ground or imminent ground occurs at any point of the high voltage system. 4. The primary voltage input to the power supply de-energizes.
	53	Are adequate booths, fencing, railings, or guards placed about the equipment that safely isolate the process from storage and persons? [NFPA 33] *Note: Such railings, fencing, and guards shall be of conducting material, adequately grounded, and at least five feet from processing equipment.*
	54	Are signs posted designated the process zone as hazardous (e.g., with respect to fire)? [NFPA 33]
	55	Are all insulators kept clean and dry? [NFPA 33]

Definitions

Approved: verified and listed by a nationally recognized testing laboratory.

Bonded: the permanent joining of metallic parts to form an electrically conductive path that will assure electrical continuity and the capacity to conduct safely any current likely to be imposed.

Combustible: any liquid having a flashpoint at or above 100°F but below 200°F.

Flammable: any liquid having a flashpoint below 100°F.

Grounded: connected to the earth or to some conducting body that serves in place of the earth.

Spraying area: any area in which dangerous quantities of flammable vapors or mists or combustible residues, dusts, or deposits are present because of spraying processes. This includes the interior of spray booths, the interior of ducts exhausting from spraying processes, and any area in the direct path of spray.

Spray booth: a power-ventilated structure that encloses or accommodates a spraying operation to confine and limit the escape of spray, vapor, and residue and to conduct or direct them safely to an exhaust system.