

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS

Letter  
Circular  
LC 773

WASHINGTON 25, D. C.

(Supersedes  
LC 334)

December 11, 1944.

SPRAY PAINTING

The National Bureau of Standards has made no investigation of the application of paint by spraying and consequently has no publications on this subject. However, it is known to be a practical and useful method of painting.

For example, members of the staff of the Bureau have had occasion to inspect a considerable number of surfaces painted both by spraying and brushing. This applies particularly to temporary wooden buildings of Army cantonments painted in 1940-1941 and inspected at various times, the last inspection being in 1944. On some of these buildings the paint was applied with a spray-gun; on others with brushes. It was not possible to trace clearly all the connections between method of application and performance of the paint. However, the inspection did indicate that good work can be done either by brushing or spraying. The significant point is the skill of the workman rather than the type of tool with which the paint is applied. It is true that the unskilled workman must be trained in the proper use of a spray-gun.

The following references may be of interest:

(1) Gardner, H. A., A study of the practicability of spray painting, (Paper before convention in New York on February 12, 1920, of Master Painters and Decorators of the United States and Canada).

(2) Gardner, H. A., Report of special committee on spray system of paint and varnish application, 35th Annual Convention, Atlantic City, November 15-17, 1922, National Paint, Oil and Varnish Association.

(3) Gardner, H.A., Recent developments of spray painting, Circular 114 of Paint Manufacturers' Association of the United States.

(4) Jennings, A. Seymour, Painting by immersion and by compressed air (Spon & Chamberlain, New York).

(5) Report of Sub-Committee XXII (of Committee D-1, American Society for Testing Materials) on Method of application of paint by spraying, Proceedings of the American Society for Testing Materials, Part I, p. 384 (1922).

(6) Vanderwalker, N. F., Automobile painting, (F. J. Drake & Company, Chicago, Ill.)

(7) Experiments on spraying paint on hospital buildings, Circular 208, Paint Manufacturers' Association of the United States.

(8) Heckel, G. B., The spray painting machine as an economical factor in the preservation and decoration of structures and products.

(9) Pickard, Glenn H., Brush vs. spray application of paint (West Paint Review), vol. 18, pp. 21-22 (1932).

(10) Miskella, William J., Practical automotive lacquering, (Finishing Research Laboratories, Inc., Chicago, Illinois).

Some of these can probably be consulted in any large library. References 4, 6, and 10 are books. Papers 1, 2, 3, 5 and 7 may possibly be obtained by addressing Dr. H. A. Gardner, 1500 Rhode Island Avenue, N. W., Washington 5, D. C. Reference 8 can probably be obtained from Mr. G. B. Heckel, Jr., 704 Weightman Building, Philadelphia, Pa.

It is a matter of common knowledge that there are hazards, including health hazards, and explosion and fire hazards, attending improper use of paint spraying equipment. The Bureau is not qualified to answer inquiries concerning the toxicity of various paints and pigments. Questions of this nature should be directed to the U. S. Public Health Service, Federal Security Agency, Washington 25, D. C. In this connection the following references may be of interest:

Safe Practices Pamphlet No. 91, Spray Coating, National Safety Council, 20 N. Wacker Drive, Chicago.

Spray Painting Report - An Investigation, National Safety Council, 20 N. Wacker Drive, Chicago.

Efficiencies of Respirators Filtering Lead Paint, Benzol, and Vitreous Enamel Spray, by S. H. Katz, E. G. Meiter, and F. H. Gibson, Bulletin No. 177, Public Health Service, Washington 25, D. C.

What are the Health Hazards of the Spray Coating Industry, Bulletin No. 536, Bureau of Labor Statistics, Department of Labor, Washington 25, D. C.

State Regulations Regarding Spray Painting, Monthly Labor Review, vol. 28, No. 5, pp. 944-957, May 1929.

Pyroxylin Finishes - Their Use and Suggestion for Safe-guarding the Attendant Hazards, National Fire Protection Association, 60 Battery March St., Boston, Mass.

Paint and Lacquer Spraying - Fire Record, National Fire Protection Assoc., 60 Battery March St., Boston, Mass.

Paint Spraying and Spray Booths, National Board of Fire Underwriters, 85 John St., New York City.

The National Electrical Code, Article 32 Hazardous Locations, National Board of Fire Underwriters, 85 John St., New York City.

in  
Spray Painting/Pennsylvania, Pennsylvania Department of Labor and Industry, Harrisburg, Pa.

Regulations for Spray Coating, Pennsylvania Department of Labor and Industry, Harrisburg, Pa.

Spray Painting Made Safe, L. C. Le Rosche, National Safety News, vol. 23, No. 5, pp. 23-24, May 1931.

Spray Painting Hazard in the Home, Safety Engineering, vol. LV, No. 1, p. 34, January 1928.

Hazards of Spray Coating Processes Investigated, by H. F. Smyth, Nation's Health, vol. 9, No. 5, p. 24, May 15, 1927.

The Prevalence and Distribution of Industrial Lead Poisoning, by Dr. Alice Hamilton, Journal of American Medical Assoc., vol. 83, No. 8, p. 583, August 23, 1924.

Review of Literature Dealing with Health Hazards in Spray Painting, National Research Council of Canada, Bulletin No. 15.

Study of Hazards in Spray Painting with Gasoline as a Diluent, James H. Sternes (Eastman Kodak Co.), J. Ind. Hygiene and Toxicology 23, 9, pp. 437-448, November 1941

Descriptive matter on the design and use of tools and appliances for spray painting may no doubt be obtained from the manufacturers of these devices, and a partial list of such manufacturers, taken from the commercial catalog files of the National Bureau of Standards, follows: (A very complete list of manufacturers can be found in "Thomas' Register of American Manufacturers", published by Thomas Publishing Company, 461 - 8th Avenue, New York City.)

- Binks Manufacturing Co., Carroll at Kedzie Ave., Chicago, Ill.
- Crown Spray Gun Mfg. Co., 1214 Venice Blvd., Los Angeles, Calif.
- De Vilbiss Co., 296 Phillips Avenue, Toledo, Ohio.
- Eclipse Air Brush Co., 391 Park Avenue, Newark, N. J.
- Eisler Electric Corp., 754 So. 13th St., Newark, N. J.
- Electric Sprayit Co., 15th and Illinois Streets, Sheboygan, Wisconsin.
- Chas. F. Elmes Engineering Works, Corner Morgan & Lake Streets, Chicago, Ill.
- Eureka Spray Co., 8728 - 130th St., New York City.
- Gould Pump, Inc., 75 Fall Street, Seneca Falls, N. Y.
- H. D. Hudson Mfg. Co., 589 East Illinois St., Chicago, Ill.
- Imperial Brass Mfg. Co., 1216 W. Harrison St., Chicago, Ill.
- Kellogg Mfg. Co., 125 Humboldt Blvd., Rochester, N. Y.
- Lipman Pump Works, Rockford, Ill.
- M. & E. Manufacturing Co., 718 So. Meridian St., Indianapolis, Indiana.
- Manley Mfg. Co., Bridgeport, Conn.
- W. N. Matthews Corp., 3710 Forest Park Blvd., St. Louis, Mo.
- Metal Specialties Mfg. Co., 3200 W. Carroll Ave., Chicago, Ill.
- Alexander Milburn Co., 1433 W. Baltimore St., Baltimore, Md.
- F. E. Myers & Bro. Co., 900 Church St., Ashland, Ohio.
- Paasche Airbrush Co., 1900 Diversey Blvd., Chicago, Ill.
- Quincy Compressor Co., 304 Maine St., Quincy, Illinois.
- Spray Engineering Co., 114 Central St., Boston, Mass.