

Painting of Fabricated Piping

Prepared by
Pipe Fabrication Institute Engineering Committee



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P. O. Box 173 • Springdale, PA 15144

PAINTING OF FABRICATED PIPING

1.0 Scope

- 1.1 This standard describes painting methods and safety precautions normally used to shop coat fabricated pipe assemblies to provide surface protection during short term periods of outside storage. (also see paragraph 6.0)

2.0 Preparation of Surface to be Painted

- 2.1 Unless otherwise specified surface preparation will consist of removing oil, grease, and all non-adhering materials to provide a surface suitable for the shop coating.

3.0 Painting Standard (non-welding surfaces)

- 3.1 The paint or coating used shall be compatible with previously applied lacquer or paint and normally be solvent reducible alkyd or water base, lead free and in accordance with O.S.H.A. guidelines to permit in-shop application. Lead not only produces hazardous fumes, but also has adverse affects on weld quality.
- 3.2 Normally the non-welding surfaces to be shop coated terminate approximately two (2) inches from end preparations or field weld areas to insure that welding is not contaminated.

4.0 Painting of Surfaces to be Welded (end preparations)

- 4.1 Paint shall meet O.S.H.A. guidelines and also have approved weld-through properties.

5.0 Painting Methods

- 5.1 Shop coats are normally applied by one or more of the following methods:
Hand brushing
Hand roller or applicator pad
Spray

6.0 Special Painting and/or Surface Preparation

- 6.1 Special painting and surface preparation are subject to prior agreement between the purchaser and fabricator.
- 6.2 Coatings that do not meet O.S.H.A. guidelines for in-shop open-spray application shall be avoided wherever possible (see paragraph 8.0). These coatings will require special equipment such as ventilated spray booths and added personal protection. In many cases coatings require special surface preparation and cleaning prior to paint application. This cleaning can be performed in accordance with PFI Standard ES-29.

7.0 Color & Film Thickness

- 7.1 Color selection shall be optional with the fabricator unless otherwise stipulated in the purchase specification.
- 7.2 Identification color markings shall be a matter of prior agreement between fabricator and purchaser.
- 7.3 Unless otherwise stipulated in the purchase specification, a one-coat application shall be considered satisfactory.

8.0 Safety Precautions

- 8.1 Normal safe shop operating procedure should be followed when applying any paint or coating material. As a minimum the following guidelines should be followed:
- 8.1.1 No paint or coating may be applied without OSHA form "Material Safety Data Sheets (MSDS)" on file and having been reviewed for:
- A. Hazardous chemicals, compounds or elements such as but not limited to lead or inorganic compounds of lead, mercury and compounds of mercury, arsenic and compounds of arsenic, chromate compounds, dicyanate, chlorinated hydrocarbons, toluene, xylene, benzene, ethyl acetate, methyl ethyl ketone, and methyl isobutyl ketone.

B. Flash Point. Where portable spray equipment is used, the paint shall have a recommended flash point equal to or greater than 80°F. Where brush, rollers or applicators are used, the recommended flash point shall be equal to or greater than 30°F.

C. Volatile organic compound (VOC) limits.

- 8.1.2 After review of the "MSDS" the fabricator must determine if the paint or coating material is suitable for use in their shop situation. Particular attention should be paid to assure that "VOC" of the material are within jurisdiction "VOC" regulations and hazardous chemicals and compounds as in 8.1.1A are avoided.

8.1.3 Having decided that the paint or coating is suitable for application, the fabricator, using the "MSDS" as a guide, must determine if proper ventilation is available and what if any personal protective equipment (PPE) is to be worn by employees using the paint or coating (i.e., respirators, masks gloves, etc.). Normally, painting is performed no closer than twenty (20) feet to any welding or burning operations or spark producing equipment.

- 8.1.4 The fabricator should apply the paint or coating in accordance with the manufacturers instructions paying particular attention to safety warnings and precautions. Employees should be trained in safety methods, equipment use and first aid measures to be used with paints and coatings as applicable.

A current index of the latest revised ES Standards and Technical Bulletins is available from the Pipe Fabrication Institute.

PFI Standards and Technical Bulletins are published to serve proven needs of the pipe fabricating industry at the design level and in actual shop operations. Hence, such needs are continually considered and reviewed by the Engineering Committee of the Pipe Fabrication Institute to provide recommended procedures which have been demonstrated by collective experiences to fulfill requirements in a manner for Code compliance. However, as the PFI Standards are for minimum requirements the designer or fabricator always has the option of specifying supplementary conditions in the form of requirements beyond the scope of the PFI publications.