

NAPCA BULLETIN 16-94

NAPCA RECOMMENDED PRACTICE FOR SURFACE CONDITION OF PIPE AS RECEIVED AT THE COATING PLANT

1. **General**

- a. This Recommended Practice may be used in whole or in part by anyone without prejudice, if recognition of the source is included. The National Association of Pipe Coating Applicators (NAPCA) assumes no responsibility for the interpretation or use of this recommended practice.
- b. By the nature of the situation, pipe surface condition is a subjective issue. The practices contained in this document cannot replace the good intent of all parties involved. This Recommended Practice is not intended to replace those issues that are properly addressed in a purchase order, customer specifications, or in a pre-production meeting. It is highly recommended that commercial issues such as financial liability due to surface contamination or imperfections be addressed in Customer specifications and the purchase order and clarified in pre-production meeting.

2. **Definitions**

The following definitions apply to this Recommended Practice:

- a. Applicator - The contractor that applies the coating to the pipe.
- b. Customer - The purchaser of the coated pipe or the entity for whom the Applicator coats the pipe.
- c. Coating Material Manufacturer - The company that makes the coating materials which are applied to the pipe.
- d. Pipe Supplier - The company that supplies the pipe to the Applicator.
- e. API - The American Petroleum Institute.
- f. NACE - NACE International.
- g. SSPC - The Steel Structures Painting Council.
- h. NAPCA - The National Association of Pipe Coating Applicators.

3. **Scope**

- a. It is the intent of this document to establish recommended practices governing pipe surface conditions on pipe as received at the Applicator's facility and prior to any treatment at the facility.
- b. These practices do not address pipe surface conditions after the surface has been prepared by the Applicator for coating application. Those conditions are covered in other specifications such as those by SSPC, NACE, and API.
- c. These practices do not supersede or duplicate other NAPCA specifications but are intended to supplement them.

4. **Pipe Inspection**

- a. Pipe inspection relevant to this document refers to that inspection necessary to

- determine the suitability of pipe received at the Applicator's facility for processing and coating.
- b. The pipe surface shall be inspected as soon as practicable after receipt of pipe at the Applicator's yard for surface contamination or surface imperfections. Generally, Applicator surface inspection should apply only to those surfaces to be coated. However, other damage to the pipe such as that caused by rail or truck transportation should also be noted and inspection reports generated.
 - c. It is left to the Applicator's discretion as to the method and degree of inspection to be used. However, the inspection should be of a level to give the Applicator a reasonable degree of comfort that the pipe will proceed through its process at a normal production rate and at a normal quality level. The inspection activity should not interfere with the normal flow of pipe from the Pipe Supplier to the Applicator.
 - d. If problems with the pipe are excessive, or if any pipe cannot be coated, or is otherwise questionable, the Applicator should notify the Customer and/or Pipe Supplier in a timely a manner.
 - e. Pipe Supplier representatives, third party inspectors, and Customer representatives may participate in this inspection.

5. **Pipe Surface Contamination**

- a. Surface contamination as applicable to this recommended practice shall mean any foreign material on the pipe surface that would not be removed in the Applicators normal process and that would be detrimental to the finished coating. The following items are considered detrimental when occurring in amounts that cannot be handled by normal processing:
 - i. Organic contaminants such as oils, lubricants, or greases. Particular attention must be paid to the excessive presence of soluble oils such as used in pipe hydrotesters and expanders.
 - ii. Previously applied coatings.
 - iii. Stencil media.
 - iv. Soluble salts (may require special testing other than visual for detection and quantification).
 - v. Adhesive type material such as tape or stickers.Surface contamination that can't be easily detected visually, such as soluble salts, may require other types of inspection or testing for detection.
- b. If pipe is received containing oil, grease, and other surface contaminants, a course of action should include one or more of the following:
 - i. Immediate notification to the Customer and/or Pipe Supplier. This is necessary so that sources of contamination my be identified and corrected.
 - ii. Removal of the contaminants by cleaning with an acceptable solvent. Criteria of acceptance for a solvent include safety considerations and ability to remove contaminant without leaving a hydrocarbon residue.
 - iii. Exposure of pipe to the open atmosphere for a sufficient period of time for the pipe surface to weather (development of a light rust).
 - iv. Use of an acid wash pretreatment prior to coating.
 - v. Other processes preferred by the Applicator which will remove

- contaminant without leaving a residue.
- c. If pipe is received containing soluble salts, a course of action should include one or more of the following:
- i. Immediate notification to the Customer and/or Pipe Supplier. This is necessary so that sources of contamination may be identified and corrected.
 - ii. Rinsing of pipe surface with clean fresh water.
 - iii. Rinsing of pipe surface with clean fresh water followed by exposure of pipe to the open atmosphere for a sufficient period of time for the pipe surface to weather.
 - iv. Use of a phosphoric acid wash pretreatment prior to coating.
 - v. Other processes by the Applicator and acceptable to the Customer and/or Pipe Supplier.

6. **Pipe Surface Imperfections**

- a. Surface imperfections as applicable to this Recommended Practice shall mean any irregularity in the steel surface which would be detrimental to the finished coating. These include, but are not limited to, the following when occurring in amounts that can't be handled by normal processing:
- i. Slivers - extremely thin, elongated pieces of metal that have been rolled into the surface of the parent metal to which it is attached, usually at only one end. Slivers normally appear, prior to treatment, as tight zig-zag lines scattered randomly on the pipe surface. Often slivers will not be visibly discernible until after blast cleaning and application of heat. Generally, slivers are shallow and are not harmful to the steel but can protrude through coating or cause coating porosity.
 - ii. Seams - crevices in the metal that have been closed and elongated giving the effect of a thin straight line. Coating may fail to flow properly around the defect or porosity may result.
 - iii. Scratches or Gouges - imperfections in the steel usually caused by mechanical removal of metal. These are often characterized by pushed or built up metal at one end of the imperfection. Coating may fail to flow properly around the imperfection. Applicator's inspector should set aside pipe containing scratches or gouges for further review by others as depth of imperfection may be below the allowable remaining wall thickness of the pipe.
 - iv. Pits - depressions usually resulting from the removal of foreign material rolled into the surface during manufacture. However, pits may also be caused by corrosive effects of contaminants.
- b. Surface imperfections normally require grinding to various degrees to suitably prepare the surface for coating application.
- c. Normal processing should be considered as the amount of work that can be handled by two grinders operating in line at a rase so as not to interfere with the normal coating application rate.
- d. Pipe with imperfections requiring greater than normal amounts of grinding should be removed from the Applicator's coating line for necessary additional grinding,

or additional grinders may be added to the coating line so as not to impede production. Additional work should be performed only after agreement between Applicator, Customer and/or Pipe Supplier. Many coating application specifications contain a provision limiting the amount of burnished anchor pattern acceptable without reblasting.

7. **Pipe Supplier's Responsibility**

When pipe is furnished by a Pipe Supplier to an Applicator for coating application, the Pipe Supplier assumes certain responsibilities for surface condition. These responsibilities include, but are not limited to:

- a. Surface condition of the pipe as delivered to the Applicator.
- b. An obligation to minimize surface contamination during production, storage or handling procedures. Particular attention should be given to eliminate surface contamination from hydraulic oil, grease, drippings from overhead cranes, use of oil and grease based marking mediums, etc..
- c. When the Pipe Supplier is responsible for pipe transportation to the coating plant, the Pipe Supplier shall be responsible for surface contamination incurred during transportation. When the Pipe Supplier is not responsible for transportation, surface contamination of pipe incurred during transportation shall be the responsibility of the party who is responsible for transportation.

8. **Coating Applicator's Responsibility**

The coating Applicator has ultimate responsibility for providing coating to meet the Customer's specifications. Taking into consideration the likelihood that the pipe may originate from a manufacturer's facility, a distributor's yard; field stock piles, etc., and may be transported under various conditions, it is expected that the Applicator's responsibilities include, but are not limited to:

- a. The capability to coat pipe to meet the Customer's specification.
- b. Inspection and/or testing required to determine surface conditions.
- c. Proper and prompt notification to the Customer and/or Pipe Supplier of problems related to surface conditions.

9. **Testing**

- a. **Pipe Surface Imperfections**
Meaningful tests for surface imperfections are not established. Due to the nature of surface imperfections, they are often not apparent until after blasting and heating of the pipe. As a result, visual inspection of the surface condition at the Pipe Supplier's facility and/or the production mill, and the Applicator's plant, both before and after blast cleaning, is necessary to identify problems associated with this condition.
- b. **Pipe Surface Contamination**
 - i. **Organic Compounds and Other Contamination**
The presence of foreign adherents such as previously applied coatings, stencil media, and organic compounds can best be determined by visual inspection.
 - ii. **Soluble salts**

In most cases of soluble salt contamination, the contaminant is a chloride ion. Procedures determining the presence of chlorides and, if present, the quantity of acceptable chlorides should be agreed upon between all concerned parties.

The measured level of chloride is highly dependent on the sampling procedure and assay technique. Other tests and acceptable chloride levels should be agreed upon by Applicator, Customer, and/or Pipe Supplier. If the selected quantitative test indicates an excessive chloride level, then a surface pretreatment such as that indicated in 5., c. of this bulletin should be used to remove or mitigate the effects of the contaminants.