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Standard Practice for Application of Asphalt Coatings to Corrugated Steel Sewer and Drainage Pipe[1]

This standard is issued under the fixed designation A 862/A 862M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This practice covers the post coating of corrugated steel pipe and corrugated structural steel plate with asphalt materials. This practice is intended for shop-applied coating only.

1.2 The values stated in either inch-pound units or SI units shall be regarded separately as standard. The values stated in each system are not exact equivalents; therefore, use each system independently of the other, without combining values in any way. The SI units are shown in brackets in the text for clarity, but they are the applicable values when the application is to be performed using SI units.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

A 849 Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe

3. Significance and Use

3.1 Asphalt coating is used to provide additional protection for corrugated steel products (product) in corrosive or abrasive environments, or both.

4. Classification

4.1 This practice covers three separate and distinct classifications of coatings. The general conditions under which these coatings are used are described in Specification A 849.

4.1.1 *Classification A, Asphalt Coated*—A uniform coating is applied to the interior and exterior of the product.

4.1.2 *Asphalt Coated with Paved Invert*:

4.1.2.1 *Classification B1, Asphalt, Half Coated with Paved Invert*—A uniform coating is applied to the interior and exterior of the pipe covering at least 50 % of the circumference on the lower portion of the pipe as installed, and then a paving is applied on the lower portion of the interior of the pipe as installed (the invert) to provide a smooth flow line.

4.1.2.2 *Classification B2, Asphalt, Fully Coated with Paved Invert*—A uniform coating is applied to the interior and exterior of the pipe, and then a paving is applied on the lower portion of the interior of the pipe as installed (the invert) to provide a smooth flow line.

4.1.3 *Classification C, Asphalt Coated and Lined*—A uniform coating is applied to the interior and exterior of the pipe, and then a lining is applied to fill the corrugations on the full interior of the pipe to provide a smooth interior.

NOTE 1—This coating is sometimes referred to as any of the following: asphalt coated and lined, asphalt coated and fully paved, asphalt coated and 100 % paved, or asphalt coated smooth flow. The term "bituminous" is sometimes used instead of asphalt.

5. Materials

5.1 The coating and lining material shall be in conformance with the requirements for asphalt material in Specification A 849.

6. Tank Control and Maintenance

6.1 *Tank Temperature*—The asphalt temperature in the tank shall be maintained between 392 and 410°F [200 and 210°C] during the coating operation.

6.2 *Tank Cleanliness*:

6.2.1 The asphalt in the tank shall be kept free of contaminants such as dirt, drum paper, and asphalt drippings from the shop floor.

6.2.2 The asphalt tank shall be cleaned as necessary with a minimum frequency of once per year.

[1] This practice is under the jurisdiction of ASTM Committee A05 on Metallic-Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.17 on Corrugated Steel Pipe Specifications.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

***A Summary of Changes section appears at the end of this standard.**

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6.2.3 The foam that results from the inadvertent introduction of moisture to the tank shall be skimmed off or moved to the side of the tank before inserting or extracting the product.

7. Procedure

7.1 *Coating Application*—Apply the asphalt coating by inserting the product into the bath twice; the first application results in a thin coating to achieve very good adherence, and the second achieves the coating thickness required by Specification A 849.

7.1.1 Steel surfaces shall be free of dirt, grease, dust, and moisture before placement in the asphalt bath. The product shall be prepared immediately prior to the coating operation.

7.1.2 Rotate large structures in the tank to ensure that all surfaces are coated.

7.1.3 The product must remain in the tank until it achieves a minimum temperature of 375°F [190°C]. The specific time requirements will depend on factors unique to each operation and the product being coated. The time to reach the required temperature is dependent on the initial temperature of the product, the steel thickness, the size of the product, and the volume of the tank.

7.1.4 The following table contains minimum immersion times:

Steel Thickness, in. [mm]	Time, min
0.052 [1.32]	2 to 2.5
0.064 [1.63]	2.5 to 3
0.079 [2.01]	3.5 to 5
0.109 [2.77]	5 to 6
0.138 [3.50]	6.5 to 8
0.168 [4.27]	8 to 14

7.1.5 Cool the product to ambient temperature before application of the second coating.

7.1.6 Insert the product a second time to provide the minimum thickness on each surface.

7.2 *Paving*:

7.2.1 Pave the interior of the coated pipe by applying the hot asphalt from the tank to the interior surface of the pipe to provide a thickness over the crest of the corrugation as required by Specification A 849. Pump the hot asphalt to the pipe by appropriate mechanical means, not by transfer with buckets. The asphalt used for paving shall be a least 395°F [200°C] to ensure good adhesion to the coated pipe. Pave the pipe as soon as possible after coating to avoid poor adhesion associated with the accumulation of dirt and other residue on the coating surface.

NOTE 2—Steam, hot oil jacketing, or high-temperature electric tape is recommended to keep the asphalt system free flowing. For further information on the selection of application equipment, consult a producer of asphalt products.

7.2.2 Place end dams of wood or heavy paper at the ends of the pipe to retain the asphalt in the pipe. Three or more applications are usually required for most operations.

7.3 *Smooth Lining*:

7.3.1 Line the interior of the pipe that has been coated by covering the corrugations with hot asphalt. Provide a thickness over the crest of the corrugations as required by Specification A 849.

7.3.2 Spray the hot asphalt, taken from the tank, while rotating the pipe on a powered rotary device to provide a uniform smooth lining.

7.4 *Storage and Handling*:

7.4.1 Store and handle the coated product properly to avoid bruising, scaling, or scuffing of the asphalt coating. At the fabricator's option, spray inorganic materials such as lime (whitewash), chalk, or silica dust on the exterior asphalt surfaces after cooling to prevent removal of the tacky coating when sections of pipe are stored in contact with each other. These inorganic coatings also help to lower the surface temperature of the pipe during storage.

7.4.2 Install and backfill asphalt-coated corrugated steel product as soon as possible to avoid the damage due to infrared radiation. Infrared radiation volatizes the thin oils in the asphalt which dries the coating and promotes cracking. Product installed in situations where prolonged exposure to the sun's rays is unavoidable (that is, aerial sewer), and cracking of the asphalt coating is possible, shall be coated with supplemental coatings such as aluminum-rich paints.

7.5 *Repair*—Repair damaged coatings with a cold-applied asphalt mastic material described in Specification A 849.

8. Keywords

8.1 asphalt coated steel pipe; asphalt coating; asphalt coating repair; coating application; corrugated steel pipe; paved invert; protective coatings; smooth lined

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SUMMARY OF CHANGES

This section identifies the principal changes to this standard that have been incorporated since the last issue.

(*1*) General revisions have been made to the text to better organize it and to clarify meanings.
(*2*) Coating classifications describe the application of the coating rather than the use of the product.
(*3*) General conditions under which the coatings can be used are described in Specification A 849.
(*4*) The coating classification "Asphalt Coated with Paved Invert" has been split into two subclassifications.
(*5*) The term "bituminous" has been replaced by the term "asphalt" in all cases, since there are some bituminous materials that are carcinogenic and the actual material used is asphalt.
(*6*) The term "product" has been used as the general descriptor for the material being coated. This was done to differentiate between cases where only pipe is the product being coated and where corrugated structural place can be coated.
(*7*) A section describing "General Requirements" has been removed, since the items listed were detailed in the subsequent paragraphs.
(*8*) The keywords paragraph has been significantly revised.
(*9*) A Summary of Changes has been added.

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