

MMM-A-115C
August 6, 1979
SUPERSEDING
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January 20, 1976

FEDERAL SPECIFICATION

ADHESIVE, ASPHALT, WATER EMULSION TYPE (FOR ASPHALT AND VINYL ASBESTOS TILE)

This specification was approved by the Commissioner, Federal Supply Services, General Services Administration, for the use of all Federal agencies.

1. SCOPE

1.1 This specification covers a clay dispersed water emulsion type of asphalt adhesive suitable for the installation of asphalt and vinyl asbestos tiles.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

Federal Specification:

PPP-P-704 - Pails, Metal: (Shipping, Steel, 1 Through 12 Gallon).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of the specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston; New York; Philadelphia; Washington, DC; Atlanta; Chicago; Kansas City, MO; Fort Worth, Houston; Denver; San Francisco; Los Angeles; and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Standard:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is

identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

FSC 8040

American Society for Testing and Materials (ASTM) Standards:

- D 897 - Tensile Properties of Adhesive Bonds.
- D 1084 - Viscosity of Adhesives.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P Street, NW, Washington, DC 20036.)

Uniform Classification Committee, Agent:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

3. REQUIREMENTS

3.1 Material. The adhesive shall consist of an asphaltic base material dispersed in water. The dispersing agent shall be a clay type substance.

3.2 Condition in container. When examined as specified in 4.4.1, the adhesive shall be homogeneous and free from lumps, skins, coarse fibers, grit, and mold. Any settling or caking shall be capable of being redispersed to a homogeneous state with hand stirring.

3.3 Viscosity. When the adhesive is tested as specified in 4.4.2, the viscosity shall be not less than 7,000 nor more than 30,000 centipoises.

3.4 Drying time. When tested as specified in 4.4.3, the adhesive shall dry to touch in not more than 90 minutes.

3.5 Sag. When tested as specified in 4.4.4, the adhesive shall sag not more than 13 mm.

3.6 Accelerated aging. When tested as specified in 4.4.5, the adhesive shall sag not more than 13 mm and shall not bleed or exude constituents.

3.7 Alkali resistance. When tested as specified in 4.4.6, the adhesive shall produce no turbidity or coloration of the alkaline solution.

3.8 Freeze-thaw resistance. When tested as specified in 4.4.7, the adhesive shall remain homogeneous, and the viscosity shall be within the originally specified range (see 3.3) extended by plus or minus 10 percent.

3.9 Workability. When tested as specified in 4.4.8, the adhesive shall not break or ball as it is being troweled.

3.10 Tensile strength.

3.10.1 Before aging. When tested as specified in 4.4.9.1, the tensile strength of the adhesive film before aging shall be not less than 5.0 pounds per square inch.

3.10.2 After aging. When tested as specified in 3.3.9.2, the tensile strength of the adhesive film after aging shall be not less than 70.0 pounds per square inch.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein.

4.2 Inspection of preparation for delivery. An inspection shall be made to determine compliance with the requirements of section 5. The sample unit shall be one shipping container fully prepared for delivery. Sampling shall be in accordance with MIL-STD-105. The inspection level shall be S-2 with an AQL of 4.0 expressed in terms of percent defective.

4.3 Testing of the end item. The methods of testing specified in 4.4 shall be followed. Sampling shall be in accordance with MIL-STD-105. The lot shall be expressed in units of gallons. The sample unit for testing shall be one gallon. The inspection level shall be S-2 and the AQL shall be 1.5 defects per hundred units. Unless otherwise specified, all test specimens shall be prepared and tested at a temperature of 23 +/- 1 deg. C and a relative humidity of 50 +/- 5 percent.

4.4 Test procedures.

4.4.1 Condition in container. The container of adhesive shall be opened and examined for signs of mold and skinning. The adhesive shall be stirred by hand with a stiff spatula or paddle to determine the presence of settling or caking. The adhesive shall be stirred by hand until homogeneous, or up to 5 minutes if settling or caking is present, at which time it shall be determined that the settling or caking can not be redispersed. The spatula or paddle shall be lifted from the container of adhesive allowing the adhesive to flow from the spatula or paddle, and the presence of lumps, coarse fibers, and grit shall be determined to determine compliance with the requirements of 3.2.

4.4.2 Viscosity. The viscosity of the adhesive shall be determined in accordance with method B of ASTM D 1084 to determine compliance with the requirement of 3.3. A Brookfield Viscometer series RV equipped with a No.6 spindle and operated at 20 rpm shall be used.

4.4.3 Drying time. The adhesive shall be stirred until uniform. A specimen shall be taken from the mixed sample and spread over an aluminum plate 4.45 by 15.24 by 0.08 cm by mean of a film applicator with a gap clearance of 0.25 mm. The aluminum plate with adhesive film shall be allowed to dry at standard conditions (see 4.3) for a period not to exceed 90 minutes to determine compliance with the requirement of 3.4.

4.4.4 Sag. The adhesive shall be stirred until uniform and spread on a clean, dry, steel plate 30.5 by 30.5 by 0.3 cm, with a standard notched trowel held at angle of 45 deg. The plate containing the adhesive shall be conditioned for 1.5 hours at standard conditions (see 4.3). A piece of asphalt tile 11.4 by 0.3 cm shall be placed without pressure on the adhesive film. A steel plate with a mass of 1.63 +/- .05 kg (approximately 17.8 by 17.8 by 0.6 cm) shall be placed without added pressure onto the piece of tile. After a period of 1 hour, the steel pressure plate shall be removed from the tile and the adhesive film marked along one edge of the tile with a sharp pointed instrument. The steel plate with the adhesive film and the tile up shall be placed at an angle of 80 deg. from the horizontal against a rigid support with the marked line on the film at the top. The steel plate shall be permitted to remain in this position for a period of 1 hour, permitting the tile to sag downward unencumbered. At the end of 1 hour, the amount of sag of the tile shall be determined for compliance with the requirement of 3.5 by measuring the distance from the marked line on the adhesive film to the top edge of the tile at the center to the nearest mm.

4.4.5 Accelerated aging. The adhesive shall be tested as specified in 4.4.4, except that the place containing the adhesive shall be conditioned for 72 hours at 70 +/- 1 deg. C and then cooled for 2 hours at standard conditions (see 4.3). The amount of sag shall be determined in accordance with 4.4.4 to determine compliance with the requirement of 3.6. The adhesive film shall be examined for bleeding or exuding of any constituent of the adhesive.

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4.4.6 Alkali resistance. The adhesive shall be stirred until uniform and spread over one piece of glass plate 10.2 by 7.6 by 0.3 cm by means of a film applicator having a 0.25 mm clearance. The adhesive shall be allowed to dry for 48 hours at standard conditions (see 4.3). The plate with the dried film shall be immersed in a 5 percent by weight sodium hydroxide solution in such a manner that 80 percent of the total area of the plate is below the surface of the solution. After 18 hours immersion in the alkaline solution, the plate shall be removed and the solution examined to determine compliance with the requirement of 3.7.

4.4.7 Freeze-thaw resistance. The adhesive shall be stirred until uniform and 400 g thereof shall be placed in a clean 1-pint press-top can. The adhesive in the closed can shall be exposed to an air temperature of -18 deg. C for 12 consecutive hours. After the freezing period, the adhesive shall be allowed to thaw for 12 hours at standard conditions (see 4.3). The freezing and thawing periods shall be repeated twice. After the third cycle, the adhesive shall be stirred by hand, examined visually, and tested in accordance with 4.4.2 to determine compliance with the requirement of 3.8.

4.4.8 Workability. The adhesive shall be stirred until uniform and spread over the clean, dry surfaces of a steel plate, interior grade plywood, and cured concrete by means of a standard notched trowel held at an angle of 45 degrees. As the adhesive is being spread, it shall be examined for breaking and balling to determine compliance with the requirement of 3.9.

4.4.9 Tensile strength.

4.4.9.1 Before aging. The tensile strength of the adhesive film before aging shall be determined in accordance with ASTM D 897 to determine compliance with the requirement of 3.10.1. Only the steel test specimens shall be used. The testing machine shall be set at a scale of 20 pounds and a crosshead speed of 0.05 inch per minute. The adhesive shall be applied to the steel specimen at a film thickness of 1.6 mm, and the assembled specimen shall be conditioned for 1.0 hour at standard conditions (see 4.3) before testing. Ten metal-to-metal specimens shall be tested for each sample.

4.4.9.2 After aging. The tensile strength of the adhesive film after aging shall be determined in accordance with 4.4.9.1, except that the assembled specimens shall be conditioned at standard conditions (see 4.3) for 168 hours before testing.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or commercial, as specified (see 6.2).

5.1.1 Level A. The 1-gallon quantities of adhesive shall be packaged in metal pails, conforming to PPP-P-704, type II, class 3 or type III, class 3. See 5.2.1 for the preparation for delivery of 5-gallon quantities.

5.1.2 Commercial. The 1-gallon quantities of adhesive shall be packaged in accordance with normal commercial practice. The complete package shall be designed to protect the adhesive against damage during shipment, handling and storage. See 5.2.2 for the preparation for delivery of 5-gallon quantities.

5.2 Packing. Packing shall be level A or commercial, as specified (see 6.2).

5.2.1 Level A. The 1-gallon quantities of adhesive, packaged as specified in 5.1, shall be packed for shipment in accordance with the appendix of

PPP-P-704. The adhesive furnished in 5-gallon quantities shall be packed in metal pails conforming to PPP-P-704, type II, class 3 or type III, class 3.

5.2.2 Commercial. The adhesive shall be packed in a manner that will assure acceptance by common carrier and provide product protection against loss and damage during multiple shipments, handling, and storage. The shipping containers shall be in compliance with the National Motor Freight Classification and Uniform Freight Classification.

5.3 Marking. Marking shall be as specified in the contract or order.

5.3.1 Special marking. In addition to markings specified in 5.3, information shall appear on each unit container and shipping container as follows:

- (a) Manufacturer's instructions for use (to include thinning directions, if applicable).
- (b) Date of manufacturer (by month and year, not by code).
- (c) Date of first reinspection (12 months from date of manufacture).
- (d) Any special directions for storage or use of the adhesive.

6. NOTES

6.1 Intended use. This adhesive is intended for adhering asphalt tile and vinyl asbestos tile to concrete subfloors, either suspended, on grade, or below grade. It may be used also for bonding these floor coverings to steel or other metal subfloors and suspended plywood or hardwood subfloors.

6.2 Ordering data. Purchasers should select the preferred option permitted herein, and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Size and type of container required (see 5.1).
- (c) Quantity required.
- (d) Level of packaging and packing required (see 5.1 and 5.2).

MILITARY CUSTODIANS:

Army - MR
Navy - YD

Preparing activity:

GSA-FSS

Civil Agency Coordinating Activities:

COM-NBS
GSA-PCD

Coordinating activity:

Navy - YD

User activity:

Navy - MS

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein.

