

PLAINTIFF'S EXHIBIT

CAP-930

SS-P-351c

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SUPERSEDING

Int. Fed. Spec. SS-P-00351b(GSA-FSS)

December 7, 1966 and

Fed. Spec. SS-P-351a

October 7, 1953

FEDERAL SPECIFICATION

PIPE AND COUPLINGS, ASBESTOS-CEMENT, PRESSURE

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

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers asbestos cement pressure pipe and couplings for conveying water, sewage, and other fluids under pressure.

1.2 Classification.

1.2.1 Types, classes, sizes, and lengths. Pipe shall be of the following types, classes, sizes and lengths, as specified (see 6.2):

Types:

Type I - Three percent maximum lime content.

Type II - One percent maximum lime content.

Type III - Unrestricted lime content.

Classes:

Class 100-Maximum operating pressure, psi.

Class 150-Maximum operating pressure, psi.

Class 200-Maximum operating pressure, psi.

Sizes:

Diameter, pipe size

4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 30, and 36 inches.

Lengths:

13 feet, all pipe sizes.

10 feet, four and six-inch pipe sizes.

2. APPLICABLE DOCUMENTS

2.1 Specifications and standards. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of the specification to the extent specified herein.

Federal Specifications:

PPP-B-585 - Boxes; Wood, Wirebound.

PPP-B-591 - Boxes; Fiberboard, Wood-Cleated.

PPP-B-601 - Boxes; Wood, Cleated-Plywood.

PPP-B-621 - Boxes; Wood, Nailed and Lock-Corner.

Federal Standard:

Fed. Std. No. 123 - Marking for Domestic Shipment (Civilian Agencies).

FSC 5630

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(Activities outside the Federal Government may obtain copies of Federal Specification and Standards as outlined under General Information in the index of Federal Specification 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, D.C. 20402.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Wash D.C., Atlanta, Chicago, Kansas City, Mo., Fort Worth, Denver, San Francisco, Los Angeles, Seattle, Wash.

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

Military Standards:

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-147 - Palletized Unit Loads (40" x 48" 4-Way Partial and 4-Way Pallets).

(Copies of specifications standards, drawings, and publications required by suppliers 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 otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials (ASTM) Publications:

- C296 - Specification for Asbestos-Cement Pressure Pipe.
- C500 - Methods of Testing Asbestos-Cement Pipe.
- D1869 - Specification for Rubber Rings for Asbestos-Cement Pipe.

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

Uniform Classification Committee:

Uniform Freight Classification Rules.

(Application for copies should be addressed to the Uniform Classification Committee, 202 Union Station, 516 W. Jackson Blvd., Chicago, Ill., 60606.)

National Classification Board:

National Motor Freight Classification Rules.

(Application for copies should be addressed to the National Classification Board, 1616 P Street N.W., Washington, D. C., 20036.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Pipe and couplings. Types I, II, and III pipe and couplings shall conform to ASTM C296 (see 4.4.1.1 and 4.4.1.2).

3.2 Elastomer coupling rings. Rings shall conform to ASTM D1869, and shall be non-oil resistant or oil resistant, as specified (see 4.4.2 and 6.2).

3.3 Pipe and accessories. Unless otherwise specified (see 6.2), a coupling and the necessary number of sealing rings shall be furnished with each length of pipe.

3.4 Identification marking. Unless otherwise specified (see 6.2), each length of pipe shall be marked with the nominal size, class, name of the manufacturer or his trademark, and date of manufacture. All parts of sleeve-couplings, except bolts and nuts if used, shall be marked with the manufacturer's identification, size, and class of pipe for which the parts are intended.

3.5 Workmanship. The pipe shall be uniform in structure and of such homogeneous composition that the pipe may be cut, drilled, and machined.

#### 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. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

##### 4.2 Sampling

4.2.1 Lot. Unless otherwise specified (see 6.2), a lot shall consist of all pipe and accessories offered for delivery at the same time.

4.2.2 Unit of product. For the purpose of quality conformance inspection, one pipe with sleeve coupling and rubber rings when so specified (see 3.3) shall be considered a unit of product.

4.2.3 Samples for visual and dimensional examination. Sampling shall be in accordance with MIL-STD-105, inspection level S-3.

4.2.4 Samples for test. Sampling of pipe and couplings shall be in accordance with ASTM C296. Sampling of rings shall be in accordance with ASTM D1869.

##### 4.3 Examination

4.3.1 Visual and dimensional. Pipe and accessories shall be examined for the following major defects. The Acceptable Quality Level (AQL) shall be 2.5 percent defective.

- 101. Dimensions not as specified.
- 102. Coupling or joints not as specified.
- 103. Identification marking omitted, incorrect, or illegible.
- 104. Workmanship not as specified.

##### 4.3.2 Inspection of preparation for delivery.

###### 4.3.2.1 Quality conformance inspection of pack.

4.3.2.1.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.3.2.1.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.3.2.1.3 Examination. Samples selected in accordance with 4.2.3. shall be examined for the following minor defects. AQL shall be 2.5 percent defective.

- 105. Materials and containers not as specified for level A or B.
- 106. Each incorrect material or container shall be considered on defect.
- 107. Couplings not palletized as required for level A or B.
- 108. Strapping not zinc coated for level A.
- 109. Marking missing, illegible, incorrect, or incomplete.

##### 4.4 Test methods.

###### 4.4.1 Pipe and couplings.

4.4.1.1 Flexural, crushing, and hydrostatic strength. Conduct these tests in accordance with ASTM C500 (see 3.1).

4.4.1.2 Uncombined calcium hydroxide (free lime). When specified (see 3.1 and 6.2), test for free lime in accordance with ASTM C500.

4.4.2 Rings. Test for non-oil resistant, and oil resistant rings in accordance with ASTM D1869 (see 3.2).

## 5. PREPARATION FOR DELIVERY

5.1 Packing. Packing shall be level A, B, or C, as specified (see 6.2).

### 5.1.1 Level A

5.1.1.1 Pipe. The pipe shall be prepared for delivery as loose pieces.

5.1.1.2 Couplings. Couplings shall be prepared as palletized loads. Unless otherwise specified (see 6.2), pallets shall conform to MIL-STD-147, load type XVII, except the size of pallets, the number of couplings, and the pallet applicable to the type of load which shall be in accordance with table I. Bonding of the couplings on pallets shall also conform to MIL-STD-147.

TABLE I. Palletized loads

| Coupling size | Pallet size | Number couplings per pallet width | Number couplings per pallet length | Number couplings per layer | Number couplings high | Number couplings per pallet |
|---------------|-------------|-----------------------------------|------------------------------------|----------------------------|-----------------------|-----------------------------|
| Inch          | Inch        |                                   |                                    |                            |                       |                             |
| 6             | 45.5 x 52   | 5                                 | 6                                  | 30                         | 5                     | 150                         |
| 8             | 45.5 x 52   | 4                                 | 5                                  | 20                         | 5                     | 100                         |
| 10            | 45.5 x 52   | 3                                 | 4                                  | 12                         | 5                     | 60                          |
| 12            | 45.5 x 52   | 3                                 | 3                                  | 9                          | 5                     | 45                          |
| 14            | 45.5 x 52   | 2                                 | 3                                  | 6                          | 4                     | 24                          |
| 16            | 45.5 x 60   | 2                                 | 3                                  | 6                          | 4                     | 24                          |
| 18            | 45.5 x 45.5 | 2                                 | 2                                  | 4                          | 4                     | 16                          |
| 20            | 45.5 x 45.5 | 1                                 | 2                                  | 2                          | 4                     | 8                           |
| 24            | 45.5 x 45.5 | 1                                 | 1                                  | 1                          | 4                     | 4                           |
| 30            | 45.5 x 45.5 | 1                                 | 1                                  | 1                          | 3                     | 3                           |
| 36            | 45.5 x 45.5 | 1                                 | 1                                  | 1                          | 3                     | 3                           |

5.1.1.3 Gaskets and sealing rings. Gaskets and sealing rings of like size and description shall be packed in boxes conforming to PPP-B-621, class 2, style optional, PPP-B-601, overseas type, style optional; PPP-B-585, style optional, class 2, or PPP-B-591, overseas type, style optional. The boxes shall be close-fitting and shall be strapped in accordance with the appendix to the box specification. Strapping shall be zinc coated. The gross weight of each box shall not exceed 200 pounds.

5.1.2 Level B. Packing shall be as specified in 5.1.1 for level A, except boxes for gaskets and sealing rings shall be domestic class or type as applicable, and strapping need not be zinc coated.

5.1.3 Level C. The pipe, couplings, gaskets, and sealing rings shall be prepared for delivery to assure carrier acceptance and safe delivery to destination at lowest rating. Containers and packing shall comply with Uniform Freight Classification Rules or National Motor Freight Classification Rules.

## 5.2 Marking

5.2.1 Civil agencies. The loose pipe, palletized unit loads, and shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.2.2 Military agencies. The loose pipe, palletized unit loads, and shipping containers shall be marked in accordance with MIL-STD-129.

## 6. NOTES

### 6.1 Intended use.

6.1.1 Type I. For use where moderately aggressive water and soil of moderate sulfate content are expected to come in contact with the pipe.

6.1.2 Type II. For use where highly aggressive water or water and soil of high sulfate content, or both, are expected to come in contact with the pipe.

6.1.3 Type III. For use where contact with aggressive waters and sulfates are not expected.

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

- (a) Title, number, and date of this specification.
- (b) Type, class, and size of pipe required (1.2 and 6.4).
- (c) Whether coupling rings shall be oil - or non-oil-resistant (3.2).
- (d) Accessories, if other than specified (3.3).
- (e) Identification marking (see 3.4).
- (f) Size of lot, if different from 4.2.1.
- (g) Whether chemical analysis is required for types I and II (see 4.4.2.2).
- (h) Selection of applicable level of packing required (see 5.1).
- (i) When required, size of pallets and number of couplings per pallet (see 5.1.1.2).

6.3 Similar specification. American Water Works Association AWWA C400 for Asbestos-Cement Water Pipe contains requirements and tests similar to ASTM C296 and C500.

6.4 Selection of pipe classes. Refer to AWWA H2, Standard Practice for the Selection of Asbestos-Cement Water Pipe. Copies may be obtained from the American Water Works Association, 2 Park Avenue, New York, N. Y. 10016.

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Order 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. Price 5 cents each.