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Standard Specification for

# Preservatives and Pressure Treatment Processes for Timber

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**AASHTO Designation: M 133-06**



**American Association of State Highway and Transportation Officials  
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Washington, D.C. 20001**

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## 1. SCOPE

- 1.1. This specification covers the wood preservatives, the preservative treatment processes, the results of treatment, the inspection and testing of preservatives and of treatment, and the identification of properly treated timber.
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## 2. REFERENCED DOCUMENTS

2.1. *AASHTO Standards:*

- M 168, Wood Products
- T 32, Sampling and Testing Brick
- T 62, Distillation of Creosote and Creosote-Coal Tar Solutions
- T 72, Saybolt Viscosity
- T 73, Flash Point by Pensky-Martens Closed Tester
- T 115, Method of Test for Distillation of Petroleum Products

2.2. *ASTM Standards:*

- D 96, Water and Sediment in Crude Oil by Centrifuge Method (Field Procedure)
- D 453, Tar Acids in Creosote-Coal Tar Solutions
- D 287, API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)

2.3. *American Wood-Preservers' Association Standards:*<sup>1</sup>

- A 1, Methods for Analysis of Creosote and Oil-Type Preservatives
- A 2, Methods for Analysis of Waterborne Preservatives and Fire-Retardant Formulations
- A 3, Methods for Determining Penetration of Preservatives and Fire Retardants
- A 4, Methods for Sampling Wood Preservatives
- A 5, Methods for Analysis of Oil-Borne Preservatives
- A 6, Method for the Determination of Oil-Type Preservatives and Water in Wood
- M 2, Standard for Inspection of Treated Products Treated with Preservatives
- M 4, Standard for the Care of Preservative-Treated Wood Products
- M 6, Brands Used on Forest Products
- P 1/P 13, Standard for Creosote Preservative
- P 2, Standard for Creosote Solutions
- P 3, Standard for Creosote-Petroleum Solution
- P 4, Standard for Petroleum Oil for Blending with Creosote
- P 5, Standard for Waterborne Preservatives

- P 8, Standard for Oil-Borne Preservatives
- P 9, Standards for Solvents and Formulations for Organic Preservative Systems
- U1-05 Use Category System: User Specification for Treated Wood (Note 1)

**Note 1**—*Posts*, in contrast with *poles*, cover lengths shorter than 16 feet.

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### 3. GENERAL REQUIREMENTS

- 3.1. Standards of the American Wood-Preservers' Association (AWPA) and specified commercial standards are incorporated herein by reference. Attention is called to the fact that all preservatives are not equally effective on all species of wood or under all conditions of exposure. The engineer preparing the plans and specifications should select the type of preservatives, retentions, and species best suited for his purpose and conditions.

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### 4. TIMBER QUALITY

- 4.1. The properties of the timber selected for preservative treatment shall conform to the requirements of AASHTO M 168.

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### 5. PRESERVATIVE QUALITY

- 5.1. The following named preservatives are acceptable in this specification. The properties shall be those set forth in the referenced AWPA Standards:

- 5.1.1. *Creosote*—P 1/P 13.
- 5.1.2. *Creosote-Coal Tar Solution*—P 2.
- 5.1.3. *Creosote-Petroleum Solution*—P 3.
- 5.1.4. *Petroleum for Blending with Creosote*—P 4.
- 5.1.5. *Pentachlorophenol*—P 8.
- 5.1.6. *Solvents Used in Pentachlorophenol Solutions*—P 9.
- 5.1.7. *Acid Copper Chromate*—P 5.
- 5.1.8. *Ammoniacal Copper Arsenate*—P 5.
- 5.1.9. *Ammoniacal Copper Zinc Arsenate*—P 5.
- 5.1.10. *Chromated Copper Arsenate, Type A*—P 5.
- 5.1.11. *Chromated Copper Arsenate, Type B*—P 5.
- 5.1.12. *Chromated Copper Arsenate, Type C*—P 5.
- 5.1.13. *Ammoniacal Copper Quat, Type B*—P 5.

- 5.1.14. *Copper Naphthenate*—P 8.
- 5.1.15. *Alkali Copper Quat, Type C*—P 5.
- 5.1.16. *Copper Azole, Type A (CBA-A)*—P 5.
- 5.1.17. *Copper Azole, Type B (CA-B)*—P 5.

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## **6. PRESERVATIVE TREATMENT PROCESSES AND RESULTS**

- 6.1. Wood products shall be treated in accordance with AWWA U1 Use Category System.
  - 6.1.1. *General Requirements for Timber Treatment*—T1.
  - 6.1.2. *Lumber and Sawed Timber*—6A.
  - 6.1.3. *Round Timber Piling*—6E.
  - 6.1.4. *Round Poles*—6D.
  - 6.1.5. *Sawed Posts*—6B.
  - 6.1.6. *Structural Composite Lumber*—6F.
  - 6.1.7. *Care and Handling of Pressure-Treated Wood Products*—M 4.

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## **7. INSPECTION AND MARKING**

- 7.1. The treater shall perform the inspection and tests and conform to the requirements described in AWWA M 2. He shall apply to each piece of treated timber a legible brand, mark or tag indicating the name of the treater and the specification symbol or specification requirements to which the treatment conforms. Acceptable symbols of compliance shall be similar to brands listed in AWWA M 6, or as provided for in the plans or special provisions.
- 7.2. The engineer shall be provided adequate facilities and free access to the necessary parts of the treating plant for inspection of material, workmanship, and treating processes, to determine that the contract requirements are met. The engineer reserves the right to retest all materials after delivery to the job site and to reject all materials that do not meet the requirements of the contract. Reinspection at the job site may include assay to determine retention of preservatives and extraction and analysis of preservative to determine its quality.

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## **8. METHODS OF SAMPLING AND TESTING**

- 8.1. The sampling and testing of wood preservatives shall be in accordance with the following standard methods of the American Association of State Highway and Transportation Officials (AASHTO), the American Society for Testing Materials (ASTM), and the American Wood-Preservers' Association (AWPA):
  - 8.1.1. *Sampling Wood Preservatives*—A 4.

- 8.1.2. *Specific Gravity 38/15.5 C of Creosote Solution*—AWPA A 1.
- 8.1.3. *Water in Creosote*—AWPA A 1.
- 8.1.4. *Insoluble Matter in Creosote*—AWPA A 1.
- 8.1.5. *Distillation of Creosote*—AASHTO T 62; AWPA A 1.
- 8.1.6. *Tar Acids in Creosote and Creosote-Coal Tar Solutions*—ASTM D 453.
- 8.1.7. *Specific Gravity of Petroleum*—ASTM D 287.
- 8.1.8. *Flash Point of Petroleum (Pensky-Martens)*—AASHTO T 73.
- 8.1.9. *Viscosity, Saybolt*—AASHTO T 72.
- 8.1.10. *Analysis of Water-Borne Preservatives*—AWPA A 2.
- 8.1.11. *Analysis of Oil-Borne Preservatives*—AWPA A 5.

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<sup>1</sup> Available from American Wood-Preservers' Association, P.O. Box 5690, Granbury, Texas 76049, Tel: 817-326-6300, [www.awpa.com](http://www.awpa.com).