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AMERICAN SOCIETY FOR TESTING AND MATERIALS

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Standard Methods of

CHEMICAL ANALYSIS OF CHROMATED ZINC CHLORIDE¹

This standard is issued under the fixed designation D 1033; 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 These methods cover the chemical analysis of chromated zinc chloride, either granulated or in commercial concentrated solutions, for use in the preservative treatment of wood.

1.2 The analytical procedures appear in the following order:

	Sections
Zinc (calculated as ZnO)	6 and 7
Hexavalent chromium (calculated as CrO ₃)	8 and 9

1.3 *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems 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:

D 1032 Specification for Chromated Zinc Chloride²

D 1193 Specification for Reagent Water³

2.2 Other Standard:

AWPA A2 Standard Methods for Analysis of Waterborne Preservatives and Fire-Retardant Formulations⁴

3. Summary of Methods

3.1 **Zinc**—A diluted and chemically treated sample is titrated with a standard solution of Potassium Ferrocyanide in the presence of an oxidation-reduction indicator (diphenylamine). The zinc is calculated as ZnO.

3.2 **Chromium**—A diluted and chemically treated sample is reacted with an excess of Ferrous Ammonium Sulfate. The unreacted Ferrous

Ammonium Sulfate is titrated with a standard solution of Potassium Dichromate to determine the consumed chromium. Hexavalent chromium is calculated as CrO₃.

4. Significance and Use

4.1 Chromated Zinc Chloride for use in the preservative treatment of wood must conform with Specification D 1032.

5. Purity of Reagents

5.1 **Reagents**—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.⁵ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 **Water**—Unless otherwise indicated, ref-

¹ These methods are under the jurisdiction of ASTM Committee D-7 on Wood and are the direct responsibility of Subcommittee D07.06 on Wood Preservatives.

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These methods are identical in substance with Sections 4, 5, and 12 of the American Wood-Preservers' Association Standard Methods for Analysis of Water-Borne Preservatives and Fire-Retardant Formulations (A2-84). Acknowledgment is made to the American Wood Preservers' Association for its development of the subject matter covered in this standard.

² Annual Book of ASTM Standards, Vol 04.09.

³ Annual Book of ASTM Standards, Vol 11.01.

⁴ Available from American Wood-Preservers' Assn., P.O. Box 849, Stevensville, MD 21666.

⁵ Reagent Chemicals, American Chemical Society Specifications, "Am. Chemical Soc., Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see "Reagent Chemicals and Standards," by Joseph Rosin, D. Van Nostrand Co., Inc., New York, NY, and The "United States Pharmacopeia."