Designation: D 1627 – 94 (Reapproved 2000)

Standard Test Methods for Chemical Analysis of Acid Copper Chromate[1]

This standard is issued under the fixed designation D 1627; 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 test methods cover the chemical analysis of solid acid copper chromate and solutions of this material.

1.1.1 Test Method D 38 covers the sampling of wood preservatives prior to testing.

1.2 The analytical procedures appear in the following order:

	Sections
Copper (calculated as CuO)	7 to 10
Hexavalent chromium (calculated as CrO_3)	11 to 13
pH of solution	14

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:*

D 38 Test Methods for Sampling Wood Preservatives Prior to Testing[2]

D 1003 Test Method for Haze and Luminous Transmittance of Transparent Plastics[3]

D 1035 Test Methods for Chemical Analysis of Fluor-Chrome-Arsenate-Phenol[2]

D 1193 Specification for Reagent Water[4]

D 1326 Methods for Chemical Analysis of Ammoniacal Copper Arsenate[2]

D 1624 Specification for Acid Copper Chromate[2]

D 1628 Test Methods for Chemical Analysis of Chromated Copper Arsenate[2]

E 70 Test Method for pH of Aqueous Solutions with the Glass Electrode[5]

2.2 *Other Standard:*

AWPA A2 Standard Methods for Analysis of Waterborne Preservatives and Fire-Retardant Formulations[6]

3. Summary of Test Methods

3.1 *Copper*—A measured sample is reacted with Hydrochloric Acid and Potassium Iodide to complex the copper ion. The solution is then titrated with a standard solution of Sodium Thiosulfate. The Copper is calculated as CuO.

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 CrO_3.

3.3 *pH*—The solution is measured for pH with a glass electrode.

4. Significance and Use

4.1 Acid copper chromate for use in the preservative treatment of wood must conform with Specification D 1624.

5. Purity of Reagents

5.1 *Purity of 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.[7] 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 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean reagent water conforming to Specification D 1193.

6. Sampling

6.1 When the material to be sampled is a water solution, it shall be mixed to ensure uniformity and the sample shall be at

[1] These test methods are under the jurisdiction of ASTM Committee D-7 on Wood and are the direct responsibility of Subcommittee D07.06 on Treatments for Wood Products.

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The analytical methods and sampling procedures are substantially the same as those given in 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 04.10.

[3] *Annual Book of ASTM Standards*, Vol 08.01.

[4] *Annual Book of ASTM Standards*, Vol 11.01.

[5] *Annual Book of ASTM Standards*, Vol 15.05.

[6] Available from American Wood-Preservers' Assn., P.O. Box 286, Woodstock, MD 21163-0286.

[7] "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 "Analar Standards for Laboratory U.K. Chemicals," BDH Ltd., Poole, Dorset, and the "United States Pharmacopeia."