Designation: D 6018 – 96 (Reapproved 2001)

Standard Test Method for Determining the Presence of Lead Salts in Leather[1]

This standard is issued under the fixed designation D 6018; 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 This test method covers qualitatively determining the presence of lead salts in leather.

1.2 The values stated in SI units are to be regarded as the standard.

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 *Federal Standard:*

Federal Test Standard No. 311, Method 6551 Lead Salts, Presence of[2]

3. Significance and Use

3.1 This test method may indicate the presence of lead salts in leather. Lead salts may be found in pigments used in leather manufacture.

4. Apparatus

4.1 *Muffle Furnace*.

4.2 *Porcelain Crucible*.

5. Reagents

5.1 *Nitric Acid*, 1:1 dilution (equal volumes of nitric acid and distilled water).

5.2 *Hydrochloric Acid*, specific gravity 1.19.

5.3 *Ammonium Acetate*, 3*N*, (231 g of ammonium acetate dissolved in distilled water to make 1 L).

5.4 *Potassium Chromate*, 5 % solution (50 g potassium chromate dissolved in distilled water to make 1 L).

6. Procedure

6.1 Place about 5 g of the specimen in a tared porcelain crucible. Place the specimen in a cold muffle furnace or pre-carbonized over a burner prior to placing in a hot furnace. Gradually raise the temperature of the furnace to 600 ± 25°C and maintain at this temperature for 60 min. Remove the crucible and contents, cool in a desiccator, and weigh. Replace in the furnace at 600 ± 25°C for 30 min and repeat the weighing procedure until a constant weight is obtained (±0.01 g). If it is difficult to obtain a constant weight, leach the residue with hot distilled water and filter through an ashless filter paper. Place the filter paper in the crucible and ash. Add the filtrate to the crucible and evaporate. Then put the crucible back in the muffle furnace and heat, cool, and weigh as above until a constant weight (±0.01 g) has been obtained.

6.2 After the crucible containing the ash has cooled, add 5 mL of nitric acid (1:1) and carefully evaporate the mixture to dryness. Then add 1 mL of concentrated hydrochloric acid and evaporate to dryness. Then add 5 mL of distilled water and evaporate to dryness. Add 10 mL of hot distilled water, filter, and wash the residue twice with 5 mL portions of hot 3*N* ammonium acetate collecting all the washings. Heat the filtrate slightly and add a few drops of concentrated hydrochloric acid followed by a few drops of 5 % potassium chromate. The formation of a yellow precipitate of lead chromate indicates the presence of lead.

7. Report

7.1 Report the presence or absence of lead.

8. Precision and Bias

8.1 This test method is adopted from Federal Test Standard No. 311, Method 6551 where it has long been in use and was approved for publication before the inclusion of precision and bias statements was mandated. The user is cautioned to verify by the use of reference materials, if available, that the precision and bias (or reproducibility) of this test method is adequate for the contemplated use.

9. Keywords

9.1 lead; lead chromate; lead salts; leather

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[1] This test method is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.06 on Chemical Analysis—General. This test method was developed from Federal Test Method Standard No. 311, Method 6551 in cooperation with the U.S. Army Natick Research Development & Engineering Center, Natick MA and the Defense Personnel Support Center Directorate of Clothing and Textiles, Philadelphia PA.

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[2] Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.