



Designation: D612 – 88(Reapproved 2007)

## Standard Test Method for Carbonizable Substances in Paraffin Wax<sup>1</sup>

This standard is issued under the fixed designation D612; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

### 1. Scope

1.1 This test method covers determination of carbonizable substances in paraffin wax. The test method is applicable to paraffin wax for pharmaceutical use, as defined by the U.S. National Formulary, with a melting point as determined in accordance with Test Method D87, between 117 and 149°F (47 and 65°C).

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered 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.* Specific warning statements are given in Annex A1.

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

D87 Test Method for Melting Point of Petroleum Wax (Cooling Curve)

D1193 Specification for Reagent Water

### 3. Summary of Test Method

3.1 Five millilitres of melted wax are treated with 5 mL of concentrated, nitrogen-free sulfuric acid at 158°F (70°C). The color of the acid layer is compared with that of a colorimetric reference standard. If the color is not darker than the standard, the wax is reported as passing the test.

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.10.0A on Physical/Chemical Properties.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

### 4. Significance and Use

4.1 This test method is a means for ascertaining whether pharmaceutical paraffin wax conforms to the standards for quality prescribed by the U.S. National Formulary.

### 5. Apparatus

5.1 *Test Tube*, as shown in Fig. 1, of heat-resistant glass<sup>3</sup> fitted with a well-ground glass stopper, the stopper and the tube bearing identical and indestructible numbers. The tube shall be  $140 \pm 2$  mm in length and between 14.5 and 15.0 mm in outside diameter, and shall be calibrated at the  $5 \pm 0.2$ -mL and  $10 \pm 0.2$ -mL liquid levels. The capacity of the tube with stopper inserted shall be between 13.6 and 15.6 mL. A rolled edge may be provided for suspending the tube on the cover of the water bath.

5.2 *Water Bath*, suitable for immersing the test tube above the 10-mL line and equipped to maintain a temperature of  $158 \pm 1.0^\circ\text{F}$  ( $70 \pm 0.5^\circ\text{C}$ ). The bath shall be provided with a cover of any suitable material, with holes approximately 16 mm in diameter through which the test tubes may be suspended.

5.3 *Color Comparator*, of a suitable type for observing the color of the acid layer in comparison with the reference standard color solution. The size and shape of the comparator are optional, but the size and shape of the apertures shall conform to the dimensions prescribed in Fig. 1.

### 6. Reagents

6.1 *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.<sup>4</sup> 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.

<sup>3</sup> Borosilicate glass has been found satisfactory for this purpose.

<sup>4</sup> *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For Suggestions on the testing of reagents not listed by the American Chemical Society, see *Annual Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

