



Standard Test Method for Determination of Insoluble Impurities Contained in Fats and Oils Used in Fat Liquors and Stuffing Compounds¹

This standard is issued under the fixed designation D 5557; 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 the determination of the amount of impurities that are insoluble in kerosine and petroleum ether contained in fats and oils.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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 56 Test Method for Flash Point by Tag Closed Tester²

D 5556 Test Method for Determination of the Moisture and Other Volatile Matter Contained in Fats and Oils Used in Fat Liquors and Softening Compounds³

3. Significance and Use

3.1 This test method is intended for the determination of insoluble impurities contained in fats and oils used in the fatliquors and stuffing compounds.

4. Apparatus and Reagents

4.1 *Gooch Crucible*, prepared with a fine or very fine filtering disc (0.7 μm retention value). The filtering disc shall be washed with water, alcohol, and ether. The crucible shall be dried to constant weight at 101 ± 1°C, cooled in a desiccator to room temperature, and weighed.

4.2 *Filter-Flask*, of convenient size and Gooch crucible adapter.

¹ This test method is under the jurisdiction of ASTM Committee D-31 on Leather and is the direct responsibility of Subcommittee D31.08 on Fats and Oils. This test method was developed in cooperation with the American Leather Chemists Assn. (Method H 21–1957).

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² *Annual Book of ASTM Standards*, Vol 05.01.

³ *Annual Book of ASTM Standards*, Vol 15.04.

4.3 *Petroleum Ether*.

4.4 *Kerosine*, refined petroleum distillate with a flash point not below 23°C (75°F) as determined by Test Method D 56 using the tag closed tester. The kerosine shall be filtered through a Gooch crucible, prepared as in 4.1, before using.

5. Procedure

5.1 Use the residue from the moisture and volatile determination (see Test Method D 5556) or a sample prepared in the same manner.

5.2 Add to the residue 50 mL of kerosine and, after heating on a water bath to dissolve the fat, filter through the prepared Gooch crucible with the aid of a vacuum. Wash the contents of the crucible with five 10 mL portions of hot kerosine, allowing each portion to drain before adding the next.

5.3 Then wash the residue in the crucible thoroughly with petroleum ether to remove all of the kerosine. Dry the crucible and contents to constant weight at 101 ± 1°C, cool to room temperature in a desiccator, and weigh.

6. Calculation and Report

6.1 Report the calculation of insoluble impurities as percentage:

$$\% \text{ insoluble impurities} = \frac{\text{gain in weight of crucible} \times 100}{\text{weight of sample taken for moisture}} \quad (1)$$

6.2 Reference this test method in the test report.

7. Precision and Bias

7.1 This test method is adopted from the procedures of the American Leather Chemists Association where it has long been in use and was approved for publication before the inclusion of precision and bias statements was mandated. The original interlaboratory test data are no longer available. 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.

8. Keywords

8.1 fats and oils; impurities; kerosine; leather; petroleum ether