



Designation: D5557 – 95 (Reapproved 2023)

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 D5557; 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D56 Test Method for Flash Point by Tag Closed Cup Tester
D5556 Test Method for Determination of the Moisture and Other Volatile Matter Contained in Fats and Oils Used in Fatliquors and Softening Compounds

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.

¹ This test method is under the jurisdiction of ASTM Committee D31 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).

Current edition approved Dec. 1, 2023. Published December 2023. Originally approved in 1994. Last previous edition approved in 2017 as D5557 – 95 (2017). DOI: 10.1520/D5557-95R23.

² 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. 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 $101\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, cooled in a desiccator to room temperature, and weighed.

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

4.3 *Petroleum Ether*.

4.4 *Kerosine*, refined petroleum distillate with a flash point not below $23\text{ }^{\circ}\text{C}$ ($75\text{ }^{\circ}\text{F}$) as determined by Test Method D56 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 D5556) 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 $101\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, 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