



Designation: F 1500 – 98 (Reapproved 2003)

Standard Test Method for Quantitating Non-UV-Absorbing Nonvolatile Extractables from Microwave Susceptors Utilizing Solvents as Food Simulants¹

This standard is issued under the fixed designation F 1500; 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 is applicable to complete microwave susceptors.

1.2 This test method covers a procedure for quantitating non-UV-absorbing nonvolatile compounds which are extractable when the microwave susceptor is tested under simulated use conditions for a particular food product.

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:*²

E 260 Practice for Packed Column Gas Chromatography

E 682 Practice for Liquid Chromatography Terms and Relationships

E 685 Practice for Testing Fixed-Wavelength Photometric Detectors Used in Liquid Chromatography

F 874 Test Method for Temperature Measurement and Profiling for Microwave Susceptors

F 1317 Test Method for Calibration of Microwave Ovens

F 1349 Test Method for Nonvolatile Ultraviolet (UV) Absorbing Extractables from Microwave Susceptors

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *microwave susceptor*—packaging materials that, when placed in a microwave field, are designed to interact with the field and provide substantial heat to the package contents.

¹ This test method is under the jurisdiction of ASTM Committee F02 on Flexible Barrier Materials and is the direct responsibility of Subcommittee F02.15 on Chemical/Safety Properties.

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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.

3.1.2 *nonvolatile extractables*—those chemical species which released from microwave food packaging under simulated use conditions and are detected using an applicable nonvolatile extractables method.

4. Summary of Test Method

4.1 Nonvolatile extractables are determined by subjecting a sample of the susceptor material to microwave heating under simulated use conditions. The sample is washed with solvents covering a range of polarities. The solvent washes are combined and the solvents evaporated just to dryness. The residue is redissolved in a measured quantity of chloroform and the sample split for gravimetric or other analyses, such as HPLC or IR. For the gravimetric determination, a measured portion of the sample is filtered and evaporated and the residue weighed. For other analyses, the remainder of the sample is evaporated and may be reconstituted in dimethylacetamide prior to injection (see Test Method **F 1349** for quantitation of UV-absorbing nonvolatiles by HPLC), or treated appropriately prior to examination by other chromatographic or spectroscopic methods.

5. Significance and Use

5.1 This test method was developed to measure non-UV-absorbing nonvolatile extractables that may be present and migrate from a microwave susceptor material during use. It may be a useful procedure to assist in minimizing the amount of non-UV-absorbing nonvolatile extractables either through susceptor design or manufacturing processes.

5.2 Supplementation of this procedure with other analytical technologies such as high-pressure liquid chromatography, supercritical fluid chromatography, or infrared or other forms of spectroscopy may provide the analyst with additional information regarding the identification of the components of the non-UV-absorbing nonvolatile extractables in the susceptor.

6. Apparatus and Reagents

6.1 *Microwave Oven*, 700 \pm 35 W, no turntable, calibrated in accordance with Test Method **F 1317**.