



Standard Test Method for Odor and Taste Transfer from Polymeric Packaging Film¹

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1. Scope

1.1 This test method covers a recommended procedure for examining odor and taste properties of polymeric film intended for use as flexible packaging materials. This test method can be used for single (mono) layers, coextruded, and laminate materials. The focus of this test method is the evaluation of the film in terms of its perceived inherent odor and the transfer of package-related odors, or flavors, or both, to water and other model systems (bland food simulants).

1.2 This test method assumes testing of the films at a one-time point; shelf-life testing is not included. Please see Ref (1)² for discussion of shelf-life testing.

1.3 This test method can provide sample preparation procedures and two methods of evaluation. The Film Performance Score Method allows for the comparison of any film sample to another. The Ranking Method allows for comparison of samples within a set. The preparation of samples is consistent regardless of the method of evaluation used.

1.4 *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:³

D1292 Test Method for Odor in Water

E460 Practice for Determining Effect of Packaging on Food and Beverage Products During Storage

E619 Practice for Evaluating Foreign Odors in Paper Packaging

E253 Terminology Relating to Sensory Evaluation of Materials and Products

E2609 Test Method for Odor or Flavor Transfer or Both from Rigid Polymeric Packaging

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *blown film, n*—monolayer or coextruded film blown by air into a bubble, which is then flattened.

3.1.2 *coextruded film, n*—two or more layers of resin extruded simultaneously. These layers may be different resins or the same resin.

3.1.3 *direct contact, n*—packaging material in physical contact with test medium.

3.1.4 *extrusion coating, n*—process of applying a molten polymer to a moving substrate.

3.1.5 *film performance score (FPS), n*—FPS is a simple calculation that allows for the comparison of one film sample to another, as long as the same battery of tests is performed on each of the film samples. The FPS is calculated by summing the average score for each of the tests in the battery. The FPS can be used to rate acceptability by comparing it to that of known acceptable material.

3.1.6 *indirect contact, n*—packaging material not in physical contact with test medium but sharing the same confined airspace with the medium.

3.1.7 *laminated film, n*—process of using a molten polymer to adhere two substrates to each other.

3.1.8 *monolayer film, n*—film consisting of a single layer of one packaging material or resin.

4. Summary of Test Method

4.1 The inherent odor level of the film is estimated from the intensity of odors developed upon confinement. The potential for contamination of packaged products by transfer from the film is determined by its effect on the taste, or odor, or both, of several substrates. Model systems, such as mineral oil, water, butter, milk chocolate, or apple juice, or combination thereof, are possible media for transfer.

4.2 The complete procedure includes three categories of tests that use various media and temperatures:

¹ This test method is under the jurisdiction of ASTM Committee E18 on Sensory Evaluation and is the direct responsibility of Subcommittee E18.05 on Sensory Applications—General.

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² The boldface numbers in parentheses refer to the list of references at the end of this standard.

³ 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.