



Standard Guide for Sensory Evaluation Methods to Determine the Sensory Shelf Life of Consumer Products¹

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1. Scope

1.1 This guide provides appropriate sensory testing approaches and possible decision criteria for establishing sensory shelf life of consumer products. It describes research considerations including: product selection and handling, appropriate application of various sensory test methods, selection of test intervals, and data analysis techniques for the determination of a product's shelf life end-point. As such, this document covers shelf life studies designed to identify the sensory end-point of a product's life to manage business risk and meet business needs. This guide will focus on the practical considerations and approaches, risks, and criteria that must be considered in designing, executing, and interpreting shelf life results.

1.2 Sensory shelf life is the time period during which the products' sensory characteristics and performance are as intended by the manufacturer. The product is consumable or usable during this period, providing the end-user with the intended sensory characteristics, performance, and benefits. After this period, however, the product has characteristics or attributes that are not as intended, or it does not perform the same functions as fresh products or those selected before the end of shelf life.

1.3 The goal of all shelf life determination is to estimate the time at which a consumer product is no longer usable, unfit for consumption, or no longer has the intended sensory characteristics. The determination of a sensory end-point is a function of the criteria selected, the test method used, and sampling risk. The three following test methods are most commonly used: (1) discrimination, (2) descriptive, and (3) affective. Researchers have to select criteria and methods that best suit the business risks associated with the selection of a final shelf life end point.

1.4 Research techniques designed to identify the causes of sensory shelf life changes or to develop predictive models of shelf life are beyond the scope of this document. These include the application of regression analysis to develop statistical

models designed to predict sensory shelf life, studies that assess the impact of various storage conditions, packaging materials, or product formulations on the shelf life of products, and studies designed to identify the causes of changes in product attributes over time. However, many of the research methods, experimental design considerations, and data analysis techniques discussed in this document can be applied to these other types of shelf life-related research.

1.5 This guide is not intended to provide a detailed description of how to conduct reliable sensory testing. It assumes knowledge of basic sensory and statistical analysis techniques, focusing instead on special considerations for the specific application of sensory testing method to shelf life determination.

2. Referenced Documents

2.1 *ASTM Standards*:²

E253 [Terminology Relating to Sensory Evaluation of Materials and Products](#)

2.2 *ASTM Manuals*:³

MNL 13 [Descriptive Analysis Testing](#)

MNL 26 [Sensory Testing Methods](#)

MNL 30 [Relating Consumer, Descriptive, and Laboratory Data to Better Understand Consumer Responses](#)

3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

3.1.1 *accelerated storage/aging*—subjecting a product to extreme or stressed conditions, such as elevated temperatures or humidity, to create changes in product characteristics that are assumed to be related to aging the product.

3.1.2 *control parameters for sensory shelf life determination (known as “control”)*—specific product or data set (based on previous sensory research) designated as the one to which the data from stored products are to be compared (see Section 6).

¹ This guide 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 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 Available from ASTM International Headquarters, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959.