



Standard Test Method for Paired Preference Test¹

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1. Scope

1.1 This document covers a procedure for determining preference between two products using either a two-alternative forced-choice task, or with the option of choosing no preference. Preference testing is a type of hedonic testing.

1.2 A paired preference test determines whether there is a statistically significant preference between two products for a given population of respondents. The target population must be carefully considered.

1.3 This method establishes preference in a single evaluation context. Replicated tests will not be covered within the scope of this document.

1.4 Paired preference testing can address overall preference or preference for a specified sensory attribute.

1.5 The method does not directly determine the magnitude of preference.

1.6 This method does not address whether or not two samples are perceived as different. Refer to Test Method E2164 for directional difference test.

1.7 A paired preference test is a simple task for respondents, and can be used with populations that have minimal reading or comprehension skills, or both.

1.8 Preference is not an intrinsic attribute of the product, such as hue is, but is a subjective measure relating to respondents' affective or hedonic response. It differs from paired comparison testing which measures objective characteristics of the product. Preference results are always dependent on the population sampled.

1.9 *This standard does not purport to address all of the safety problems associated with its use, when testing includes hazardous materials, operations, or equipment. It is the responsibility of the user of this standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

E253 Terminology Relating to Sensory Evaluation of Materials and Products

E456 Terminology Relating to Quality and Statistics

E1871 Guide for Serving Protocol for Sensory Evaluation of Foods and Beverages

E1958 Guide for Sensory Claim Substantiation

E2164 Test Method for Directional Difference Test

2.2 ISO Standard:

ISO 5495 Sensory Analysis—Methodology—Paired Comparison³

3. Terminology

3.1 For definition of terms relating to sensory analysis, see Terminology E253, and for terms relating to statistics, see Terminology E456.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 α (*alpha*) *risk*—the probability of concluding that a preference exists when, in reality, one does not. (Also known as Type I Error or significance level.)

3.2.2 β (*beta*) *risk*—the probability of concluding that no preference exists when, in reality, one does. (Also known as Type II Error.)

3.2.3 *common responses*—for a one-sided test, the number of respondents selecting the product that is expected to be preferred. For a two-sided test, the largest number of respondents selecting either product.

3.2.4 *one-sided test*—a test in which the researcher has an *a priori* assumption concerning the direction of the preference. In this case, the alternative hypothesis will express that a specific product is preferred over another product (that is only, $A > B$ or $A < B$), depending on the *a priori* belief.

3.2.5 *two-sided test*—a test in which the researcher does not have any *a priori* assumption concerning direction of the

¹ This test method is under the jurisdiction of ASTM Committee E18 on Sensory Evaluation and is the direct responsibility of Subcommittee E18.04 on Fundamentals of Sensory.

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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 American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.