



Designation: ~~E253-06~~ Designation: E 253 - 07

## Standard Terminology Relating to Sensory Evaluation of Materials and Products<sup>1</sup>

This standard is issued under the fixed designation E 253; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Referenced Documents

1.1 *ASTM Standards*:<sup>2</sup>

E 284 Terminology of Appearance

### 2. Terminology

**absolute judgment**, *n*—~~an evaluation of a stimulus made without direct comparison. (2006)~~ an evaluation of a stimulus made without direct comparison to other stimuli. (2007)

**acceptability/unacceptability**, *n*—degree to which a stimulus is judged to be favorable or unfavorable. (2006)

**acuity**, *n*—the ability to ~~repeatedly~~ detect or discriminate sensory stimuli. ~~(1996)~~ (2007)

**adaptation, sensory**, *n*—a decrease in sensitivity to a given stimulus which occurs as a result of exposure to that stimulus. (2006)

**affective test**, *n*—any method to assess acceptance, attitudes, emotions, or preference for a stimulus (i). (2006)

**after effects**, *n*—total array of sensations that occur after elimination of the physical stimulus from the sensing field. (1996)

**aftersensation**, *n*—sense impression after direct stimulation of the sense organ has ceased. (1996)

**aftertaste**, *n*—the oral or nasal sensations that occur after the ~~source of the~~ stimulus has been removed from the oral cavity. See **after effects**. ~~(1996)~~. (2007)

**agusia**, *n*—lack of sensitivity to taste stimuli. (1996)

**anchoring point**, *n*—a reference point against which other items are judged. (1996)

**anosmia**, *n*—lack of sensitivity to odor stimuli. (1996)

**A-not-A test**, *n*—a method of discrimination testing comprised of at least two samples; at least one sample is a previously identified sample (“A”) and at least one is a test sample. All samples are presented blindly, and the assessor’s task is to assign the label “A” or “not-A” to each of the samples. (2001)

**antagonism**, *n*—joint action of two or more stimuli whose combination elicits a level of sensation lower than that expected from combining the effects of each stimulus taken separately. (1996)

**aroma**, *n*—perception resulting from stimulating the olfactory receptors; in a broader sense, the term is sometimes used to refer to the combination of sensations resulting from stimulation of the entire nasal cavity. (1996)

DISCUSSION—Aroma, odor, and smell have the same basic meaning; however, in common usage they may have different connotations.

**assessor**, *n*—a general term for any individual responding to stimuli in a sensory test. (2006)

DISCUSSION—The terms *assessor*, *judge*, *panelist*, *panel member*, and *respondent* all have the same basic meaning, although sometimes different connotations. Usage of these terms varies with the training and experience of the investigator, habit, tradition, personal preference, and other factors.

**astringency**, *n*—the complex of sensations due to shrinking, drawing, or puckering of the epithelium as a result of exposure to substances such as alums or tannins. (1996)

**attitude**, *n*—a predisposition to respond in a characteristic way toward a class of objects, concepts, or stimuli. (1996)

**attitude scale**, *n*—a means for eliciting indications of the attitudes or opinions held, usually on a measuring system using marks or value designations. (1996)

**attribute**, *n*—a perceived characteristic. (1996)

**audition**, *n*—the sense of hearing. (1996)

**aversion**, *n*—feeling of dislike provoking avoidance of a stimulus. (1996)

**bias**, *n*—systematic error manifested as a persistent positive or negative deviation of the method average from its accepted true value. (1996)

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee E18 on Sensory Evaluation and is the direct responsibility of Subcommittee E18.01 on Terminology. Current edition approved Aug. 15, 2006. Published August 2006. Originally approved in 1965. Last previous edition approved in 2005 as E253-05. Current edition approved Oct. 1, 2007. Published November 2007. Originally approved in 1965. Last previous edition approved in 2006 as E 253 - 06.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

- bite, chemical, n**—stinging experienced primarily in the oral cavity as a result of exposure to substances such as highly carbonated beverages. (1997)
- bitter, adj**—taste produced by substances such as quinine or caffeine when in solution. (2003)
- body (food), n**—the quality of a food or beverage relating either to its consistency, compactness of texture, fullness, flavor, or combination thereof. (1997)
- brightness, n**—see **color (of an object)**. (2001) (For consensus technical definition see **brightness** in Terminology E 284).
- burn chemical, n**—perception of increased temperature and irritation resulting from exposure to such substances as ethyl alcohol, or high concentrations of NaCl or acids. The sensation lingers a short time after the stimulus is removed. (1997)
- chroma, n**—see **color**. (2001) (For consensus technical definition see **chroma** in Terminology E 284).
- classification, n**—a method of sorting stimuli into predefined categories. (1997)
- color (of an object), n**— the appearance of an object dependent upon the spectral composition of radiant and incident light, the spectral reflectance or transmittance of the object, and the psychological response of the observer. The experience may be described in terms of three attributes: hue, brightness, and chroma. (2001) (For consensus technical definition see **color** in Terminology E 284 as defined by Committee E12.)
- hue*—attribute of color related to the wavelength of electromagnetic energy and experienced as “red,” “green,” “blue,” and other elements of the visible spectrum.
- brightness*—aspect of visual perception whereby an area appears to emit more or less light.
- chroma*—experienced as color purity, attribute of color used to indicate the degree of departure of the color from a gray of the same brightness.
- color blindness, n**—total or partial inability to differentiate certain hues. (1997)
- consumer panel, n**—a group that is representative of the potential user population and that does not have technical knowledge of the products to be tested. (1997)
- context effect, n**—effect upon the perception of a stimulus arising from its interrelationship with other stimuli in a presentation set. (1997)
- contrast, n**— *visual*, the degree of dissimilarity in appearance of two parts of a field of view seen simultaneously or successively. (1998)
- contrast effect, n**—special case of context effect in which the perceived degree of difference between stimuli is exaggerated as a result of their interrelationship. (1997)
- convergence, n**—tendency of a stimulus to be perceived as similar to prior stimulus or stimuli. (1997)
- convergence effect, n**—special case of context effect in which the perceived degree of difference between stimuli is diminished as a result of their interrelationship. (1997)
- cooling, chemical, n**—sensation of reduced temperature experienced as a result of exposure to certain substances such as menthol or anise. The sensation usually persists after the stimulus is removed. (1997)
- cooling, physical, n**—sensation of reduced temperature experienced as a result of exposure to thermally cold substances, such as ice; to substances that evaporate rapidly, such as acetone or alcohol; or to substances that have a negative heat of solution, such as crystalline sorbitol. The duration of the sensation is usually limited to the time of direct contact with the stimulus. (1998)
- cutaneous sense, n**—any of the senses whose receptors lie in the skin or immediately beneath it (or in the external mucous membranes): contact, pressure, warmth, cold, and pain. (1997)
- descriptive analysis, n**— any method to describe and quantify the sensory characteristics of stimuli by a panel of trained assessors. (1998)
- difference limen, n**—See **threshold, difference**. (1997)
- discrimination, n**—the process of qualitatively or quantitatively differentiating among stimuli. (1998)
- discrimination test, n**—any method to determine if differences among stimuli are perceptible. For example: triangle tests, duo-trio tests, paired comparison tests, etc. (1998)
- duo-trio test, n**—a method of discrimination testing comprised of two coded samples and one identified reference. One of the coded samples and the reference are identical. The assessor is asked to select which of the two coded samples is different from the reference or which of the two coded samples is the same as the reference. (1998)
- expectation, error of, n**— a bias due to preconceived ideas that influences an assessor’s judgment. (1999)
- expert, n**—a common term for a person with extensive experience in a product category who performs perceptual evaluations to draw conclusions about the effects of variations in raw materials, processing, storage, aging, etc. Experts often operate alone. (1995) (See also **assessor** and **expert assessor** .)
- expert assessor, n**—an assessor with a high degree of sensory acuity who has experience in the test procedure and established ability to make consistent and repeatable sensory assessments. An expert assessor functions as a member of a sensory panel. (1995) (See also **assessor** and **expert**.)
- flavor, n**—(1) perception resulting from stimulating a combination of the taste buds, the olfactory organs, and chemesthetic receptors within the oral cavity; (2) the combined effect of taste sensations, aromatics, and chemical feeling factors evoked by a substance in the oral cavity. (2001)
- free-choice profiling, n**— a form of sensory profiling in which each assessor independently generates attributes to evaluate a group

of samples. The assessors' attributes may be the same or may differ from sample to sample. The assessors' sensory profiles are combined statistically (for example, by Generalized Procrustes Analysis) to produce a map of the samples. (2000)

**gloss, *n***—a shiny appearance resulting from the tendency of a surface to reflect light energy at one angle more than at others. (2000)  
(See **reflectance, directional** . For the consensus technical definition, see **gloss** in Terminology E 284.)

**gustation, *n***—(1) the sense of taste. (2) pertaining to the act of tasting. (2000)

**heat, chemical, *n***—sensation of increased temperature resulting from exposure to substances such as capsaicin or hot peppers. The sensation tends to persist after the stimulus is removed.

**heat, physical, *n***—sensation experienced as a result of exposure to thermally hot substances such as water above 120°F. The duration of the sensation is usually limited to the time of direct contact with the stimulus.

**hedonic scale, *n***—a scale on which liking or disliking of a stimulus is expressed. (2000)

**hue, *n***—see **color** (*of an object*). (2001) (For consensus technical definition see **hue** in Terminology E 284.)

**inadequate stimulus, *n***—a stimulus which is not regarded as normally affecting a particular sense, but which may actually do so (for example, pressure on the eyeball producing a perception of light, or electrical stimulation generating a taste). (2000)

**intensity, *n***—the perceived magnitude of a stimulus. (2000)

**judge, *n***—See **assessor**. (2000)

**just noticeable difference, *n***—See **threshold, difference**. (2000)

**kinesthesia, *n***—perception of pressure, position, or motion in muscles, tendons, or joints. (2001)

**magnitude estimation, *n***— process of assigning values to the intensities of an attribute in such a way that the ratios between pairs of assigned values are the same as between the magnitudes of the perceptions to which they correspond. (2003)

**masking, *n***—the phenomenon where one quality within a mixture obscures one or several other qualities present. (2001)

**matching, *n***—the process of equating or relating stimuli, usually to determine the similarity between standard and unknown or between unknowns. (2002)

**modality, *n***—any of the sensory systems (for example, auditory, taste, olfaction, touch, or visual modality). (2001)

**mouthfeel, *n***—a mixed experience deriving from sensations in the oral cavity that relate to physical (for example, density, particulate) or chemical (for example, astringency, menthol cooling) properties of a stimulus material. (2001)

**observer, *n***—(1) an assessor in a visual sensory test. (See also **assessor**.) (2) a person who is watching an individual or group to collect information about behavior, responses to products, test protocols, or processes. (2002)

**odor, *n***—See **aroma**. (2001)

**odorant, *n***—a substance that stimulates the olfactory receptors. (2002)

**olfaction, *n***—(1) the sense of smell. (2) pertaining to the act of smelling. (2000)

**olfactory, *adj***—pertaining to the sense of smell. (2001)

**organoleptic, *adj***—relating to a property of a sample perceived by the sense organs (obsolete, see **sensory**). (2001)

**paired comparison, *n***—a method in which stimuli are presented in pairs for comparison on the basis of some defined criterion. (2001)

**palatable, *adj***—sufficiently pleasant to be consumed. (2003)

**panel, *n***—a group of assessors chosen to participate in a sensory test. (2001)

**panelist, *n***—See **assessor**. (2001)

**panel member, *n***—See **assessor**. (2001)

**partial sensory profile, *n***— a profile comprising certain selected attributes with their intensity values. Examples are flavor profile, odor profile, and texture profile. (2001)

**perception, *n***—the awareness of a stimulus by way of the senses. (2003)

**preference, *n***—choice of one product, treatment, or item over others in a given set based upon hedonics, sensory properties, or other criteria. (2003)

**psychometrics, *n***—application of measurement principles to psychological phenomena. (2003)

**psychophysical methods, *n***— procedures for establishing relationships between measurable physical stimuli and resulting sensory responses. Some examples of these methods are the method of limits, method of constant stimuli, and the method of adjustment. (2003)

**psychophysical power law, *n***— a power function describing the relationship between physical amounts of stimuli and their respective perceived intensities. (2003) The mathematical relationship is:

$$R = kS^n$$

where:

$R$  = perceived intensity of a given stimulus,

$S$  = physical amount of that stimulus,

$k$  = constant reflecting the unit of measurement, and

$n$  = exponent that is an empirical constant characteristic of the given sensory system.

**pungency, *n***—irritating, piercing, or sharp trigeminal sensation, experienced primarily in the nasal cavity, as a result of exposure to ammonia or to the volatiles of such substances as freshly prepared mustard or horseradish. (2002)

**qualitative sensory profile, *n***—a description of a sample consisting of sensory attributes, but without intensity values.