



Designation: E1490 – 03

## Standard Practice for Descriptive Skinfeel Analysis of Creams and Lotions<sup>1</sup>

This standard is issued under the fixed designation E1490; 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. Scope

1.1 The objective of this practice is to provide procedures that may be used in the design and analysis of studies of skin care products that compare qualitatively and quantitatively various sensory attributes and their intensity (or strength) over time. These properties can then be used to define the performance of skin care products to provide direction in product formulation, research guidance, and claim substantiation.

1.2 Guidelines are provided for the definition of each product attribute or term, range of the rating scales, procedures for the manipulation of product alone and on the skin, selection and training of panelists, handling of products, and skin conditioning prior to tests.

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:*<sup>2</sup>

E253 Terminology Relating to Sensory Evaluation of Materials and Products

### 3. Terminology

3.1 **Definitions**—Definitions of descriptive terms other than those given as follows appear in the procedure of **Appendix X1**.

3.1.1 *afterfeel*—the feel of the skin after application of the sample, with or without touching, usually measured at a set time interval.

3.1.2 *delivery*—the stage during which the product is discharged onto the finger(s) or skin.

3.1.3 *greasy*—a somewhat thick, sticky, either slightly resistant or slightly slippery film (for example, petrolatum).

3.1.4 *oily*—a thin, slippery, non-sticky film (for example, mineral oil).

3.1.5 *panel leader*—a person who is responsible for conducting descriptive panels and control product, protocols, and panel maintenance.

3.1.6 *pick-up*—the stage during which the product is manipulated between the fingers.

3.1.7 *reference anchors*—products that are used to demonstrate high or low intensities of a particular attribute.

3.1.8 *rub-out*—the stage during which the product is rubbed onto the skin.

3.1.9 *waxy*—a rigid, dry, somewhat resistant residue.

### 4. Summary of Practice

4.1 This practice provides for the identification of panelists selected and trained appropriately to evaluate the intensity and duration of defined sensory characteristics of skin care products. The details of specified procedures are defined in Sections 7 and 8 of this practice.

### 5. Significance and Use

5.1 The procedure recommended in this practice can be used to assess the sensory appearance and tactile properties of lotions and creams or ointment.

5.2 This practice is applicable to product categories that include skin lotions and creams; facial moisturizers; hand lotions and creams; and skin care products for which the appearance and tactile properties need to be assessed.

5.3 Procedures of the type described herein may be used to communicate perceived sensory properties (appearance and feel) between manufacturers and to the consumer through the media. These guidelines are suggested to meet the need for ascertaining the performance of experimental or commercial samples.

5.4 These procedures are to be used by persons who have familiarized themselves with the procedures and have had previous experience with sensory evaluation.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee E18 on Sensory Evaluation of Materials and Products and is the direct responsibility of Subcommittee E18.07 on Personal Care and Household Evaluation.

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<sup>2</sup> 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.

5.5 This practice provides suggested procedures and is not meant to exclude alternate procedures that may be effective in providing sensory evaluation descriptions.

## 6. Equipment

6.1 The following equipment may be used during the evaluation process.

6.1.1 *Template*, used to outline the 2-in. (51-mm) diameter circles on the forearm. It assures that consistent, measured areas are delineated for product application and evaluation (for example, a flexible plastic material with 2-in. (51-mm) diameter circles cut out for outlining with an appropriate marker).

6.1.2 *Light Source/Viewing Conditions*—A consistent light source for each panelist is recommended for use during the evaluation of shine. The type of light source will depend on the specific nature of the product being evaluated. It is important that all panelists receive the same amount of light on the arms and the same angle of light, and that the distance from the test site and light be the same for each panelist (for example, high-intensity desk lamps).

6.1.3 *Skin Thermometer*.<sup>3</sup>

6.1.4 *Repeater Pipette*.

6.1.5 *Metronome*.

6.1.6 *Stopwatch*.

6.1.7 *Syringe*.

6.1.8 *Petri Dishes*.

6.1.9 *Weight Boats*.

6.1.10 *Hygrometer*.

## 7. Panel Selection and Training

7.1 *Objective*—To select and train a panel of 10 to 15 judges to evaluate the skinfeel properties (included in appearance, pick-up, rub-out, and afterfeel stages) of lotions and creams using a descriptive analysis method that quantifies several sensory attributes over time.

7.2 *Panel Section*:

7.2.1 Panelists are recruited from within a company or the local community. The choice to use employees allows a company to have the panelists on site and to keep proprietary samples and information on site. The use of local community residents allows a company to schedule more panel time per week and provides a smaller risk to losing panelists both on a daily basis and long term.

7.2.2 A large group of candidates are recruited from the local community (50 to 75) by contacting community groups or placing newspaper ads, or both. Candidates from within the company are contacted by interoffice memo or notices posted on bulletin boards. Prior to the prescreening questionnaire, candidates should be informed of the time commitment for training (orientation and practice sessions), the potential duration of the panel, the use of the panel, and the expectation of each panelist in terms of commitment to the panel. The prescreening questionnaire is recommended for determining

### SCREENING QUESTIONNAIRE

NAME \_\_\_\_\_ PHONE NO. \_\_\_\_\_

ADDRESS \_\_\_\_\_ (city/state) (zip code)

**TIME**

1. ARE YOU CURRENTLY EMPLOYED OUTSIDE THE HOME? \_\_\_\_\_  
IF YES, WHAT HOURS AND DAYS DO YOU WORK \_\_\_\_\_

2. ARE THERE ANY WEEKDAYS, MONDAY THROUGH FRIDAY, THAT YOU WILL NOT BE AVAILABLE ON A REGULAR BASIS? \_\_\_\_\_  
IF YES, WHAT HOURS AND DAYS ARE COMMITTED? \_\_\_\_\_

3. DO YOU HAVE YOUR OWN MEANS OF TRANSPORTATION? \_\_\_\_\_

**HEALTH**

1. HAVE YOU EVER HAD AN ALLERGIC OR ADVERSE REACTION TO ANY LOTION, FRAGRANCE OR CREAM? IF YES, DESCRIBE \_\_\_\_\_

2. DO YOU HAVE ANY OF THE FOLLOWING?

	YES	NO
PSORIASIS	( )	( )
ECZEMA	( )	( )
CENTRAL NERVOUS SYSTEM DISORDER	( )	( )
UNUSUALLY COLD OR WARM HANDS	( )	( )
SKIN RASHES	( )	( )
CALLUSES ON HANDS/FINGERS	( )	( )
HYPERSENSITIVE SKIN	( )	( )
TINGLING IN THE FINGERS	( )	( )

3. ARE YOU CURRENTLY TAKING ANY MEDICATION?  
PLEASE LIST \_\_\_\_\_

**GENERAL**

1. DOES ANYONE IN YOUR IMMEDIATE FAMILY WORK FOR A CONSUMER PRODUCT COMPANY? \_\_\_\_\_

2. DOES ANYONE IN YOUR IMMEDIATE FAMILY WORK FOR A PERSONAL CARE COMPANY? \_\_\_\_\_

3. DOES ANYONE IN YOUR IMMEDIATE FAMILY OR SOMEONE YOU KNOW WELL WORK FOR A MARKETING RESEARCH OR ADVERTISING FIRM? \_\_\_\_\_

FIG. 1 Screening Questionnaire

availability, interest, general knowledge of tactile properties, ability to use descriptive words, and ability to use rating scales (see Figs. 1-3).

7.2.3 The 20 to 30 candidates who score best on the prescreening questionnaire (see 7.2.5 for criteria) participate in the acuity screening phase (see Figs. 4 and 5). Candidates are asked to rate the intensity of skinfeel attributes for three samples chosen specifically to represent the range for the attributes tested. One attribute is chosen from each evaluation category: appearance (for example, integrity of shape), pick-up (for example, firmness or stickiness), rub-out (for example, ease to spread or whitening), and afterfeel (for example, greasiness or amount of residue). For rub-out and afterfeel attributes, the three test products are applied in premeasured amounts to three 2-in. (51-mm) circles on each arm. Use one arm for the rub-out evaluation and the other arm for the afterfeel attribute.

7.2.3.1 Candidates should have at least two products (of the three tested) rated properly for three of the four attributes in order to qualify as having sensory acuity.

7.2.4 Each candidate is interviewed by the panel administrator or trainer to determine attitude, interest, ability to learn and work in a group dynamics situation, and availability for orientation, practice, and panel sessions on a routine basis (see Fig. 6).

7.2.5 Select 10 to 15 panelists on the basis of the following criteria (see Figs. 7-12):

7.2.5.1 Availability for the complete orientation and 80 to 100 % of the practice sessions during training;

<sup>3</sup> Two telethermometers that would satisfy the guidelines identified in this practice are Telethermometer Model 44TA, marketed by YSI (Yellow Springs Instrument Company, Inc.), Yellow Springs, OH, or Digital Thermometer Model No. 5650 from Markson Science, Inc., Del Mar, CA.