

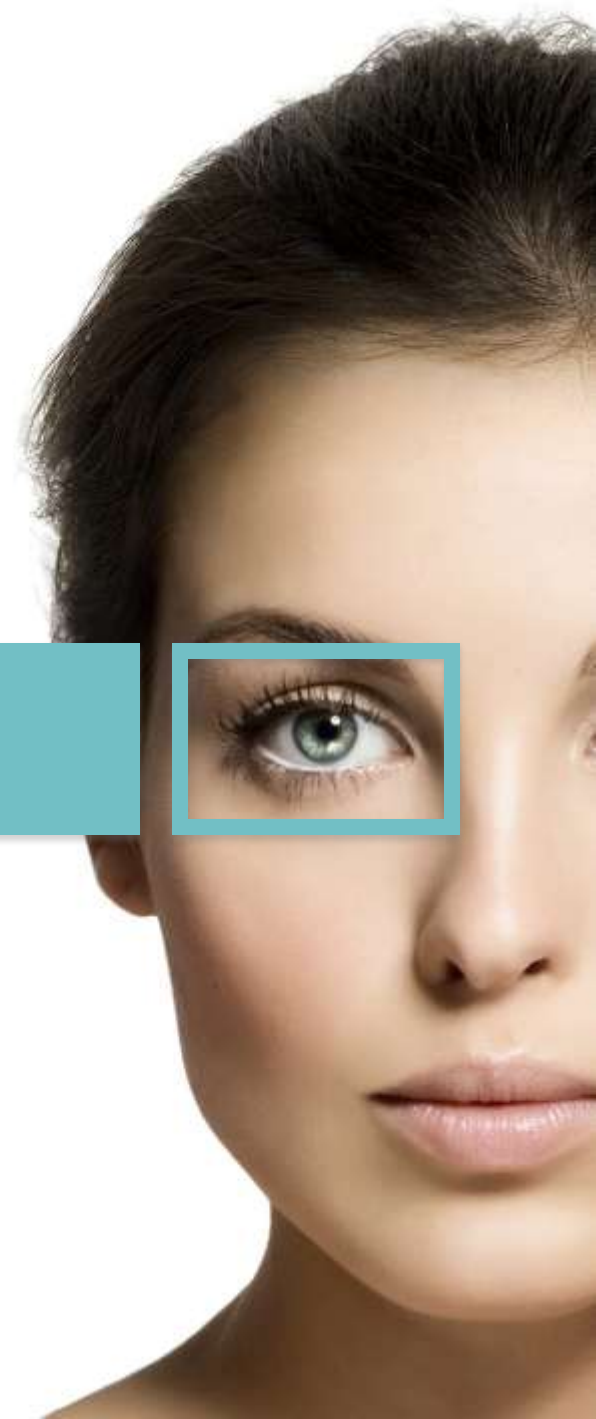
ASTM International **Committee E18** **Sensory Evaluation**

more than meets the eye

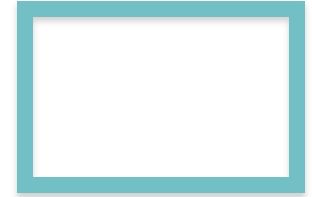
ASTM E18 – An Introduction

October 10, 2012

Donya Germain
Rebecca Bleibaum



1898 – PENNSYLVANIA RAILROAD

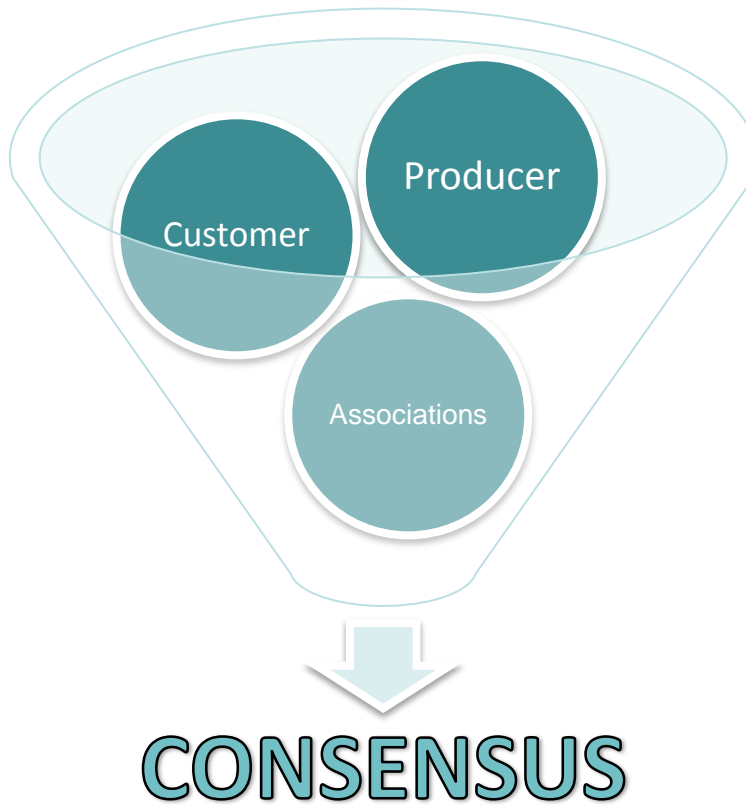
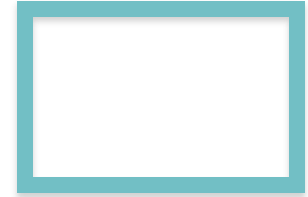


- Largest corporation in 19th century
- Dr. Charles Dudley organized the chemistry department
- Technical properties of:
 - Oil
 - Paint
 - Steel

- **STANDARDS FOR SUPPLIERS**



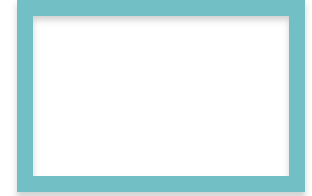
EARLY ASSOCIATION



The development and unification of standard methods of testing; the examination of technically important properties of materials of construction and other materials of practical value, and also the perfection of apparatus used for this purpose



ASTM TODAY



141 technical
standards
committees

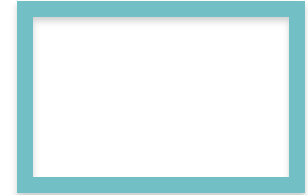
~12,000
standards

>30,000
members

135 countries

- Improve product quality
- Enhance safety
- Facilitate market access and trade
- Build consumer confidence

IMPACT ON EVERYDAY LIFE



A01 -
Steel

C01 -
Cement



C26 – Nuclear
Fuel Cycle

F27 – Snow
Skiing

F08 – Sports
Equipment

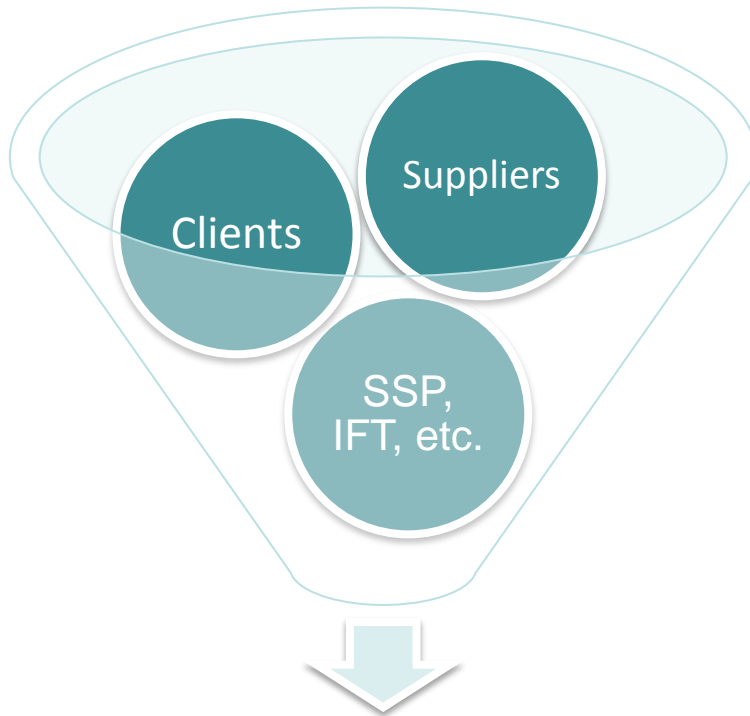
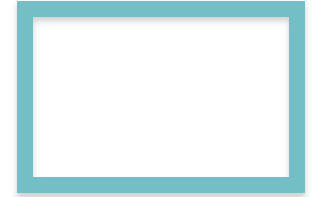
E05 – Fire
Standards



D13 -
Textiles



TODAY

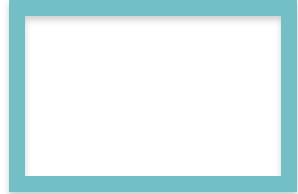


E18 SENSORY EVALUATION

The promotion of knowledge, stimulation of research, and the development of principles and standards for the sensory evaluation of materials and products.



E18 – SENSORY EVALUATION



E18.01
Terminology

E18.02
ISO

E18.03 Sensory Theory & Statistics

- Magnitude Estimation
- Time Intensity
- Thurstonian
- **Panelist Tracking**
- Sensory/Instrumental Correlations
- Equivalence Testing
- **No Preference**

E18.04

Fundamentals of Sensory

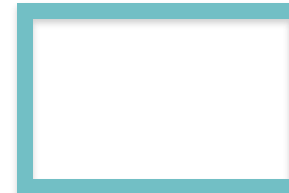
- Odor Intensity
- Odor and Taste Thresholds
- Calculating Sensory Thresholds
- **Triangle Test**
- Same-Different Test
- Directional Different Test
- Paired Preference Test
- Duo-Trio Test
- Scaling
- **Acceptance/Preference Test**
- Replicated Forced Choice
- Sampling
- Selection of Assessors
- **Tetrad Test**

E18.90
Executive

E18.92
Strategic
Planning

E18.93
Communication
& Training

E18 – SENSORY EVALUATION



E18.05

Sensory Applications

- **Testing with Children**
- Packaging
- Facilities
- Quantitative Research
- Qualitative Research
- **Ad Claim**

E18.06

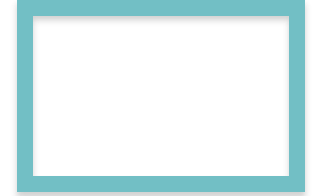
Food & Beverage Evaluation

- Red Pepper Heat
- Handling Edible Vegetable Oils
- Low Heat Chilies
- Oleoresin Capsicum
- Exposed Fish
- **Alcoholic Beverages**
- Drinking Water

E18.07

Personal Care & Household Evaluation

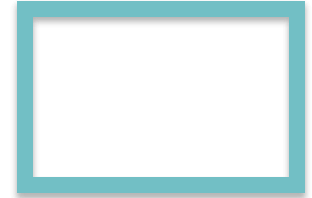
- Axillary Deodorancy
- Skin Cream & Lotions
- **Air Care Products**
- Fragrance/Odor Evaluation of Shampoos and Hair Care Products
- Shampoo Performance
- Hard Surface Cleaner
- **Oral Care Products**
- Preparing Malodors



BEST PRACTICES

- Discrimination Testing
- Descriptive Analysis
- Ad Claims
- International Product Testing

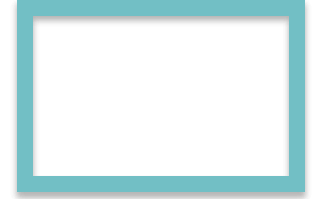
Definition



A discrimination test is defined as any method to determine if differences among stimuli are perceptible

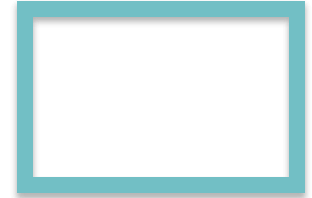
Source: ASTM E253 – 11a; Standard Terminology Relating to Sensory Evaluation of Materials and Products

Examples



- Process change**
- Package change**
- Handling change**
- Cost reductions**
- Ingredient substitutions**
- Shelf life**
- Quality control**

Descriptive Analysis – *A Broad Definition*



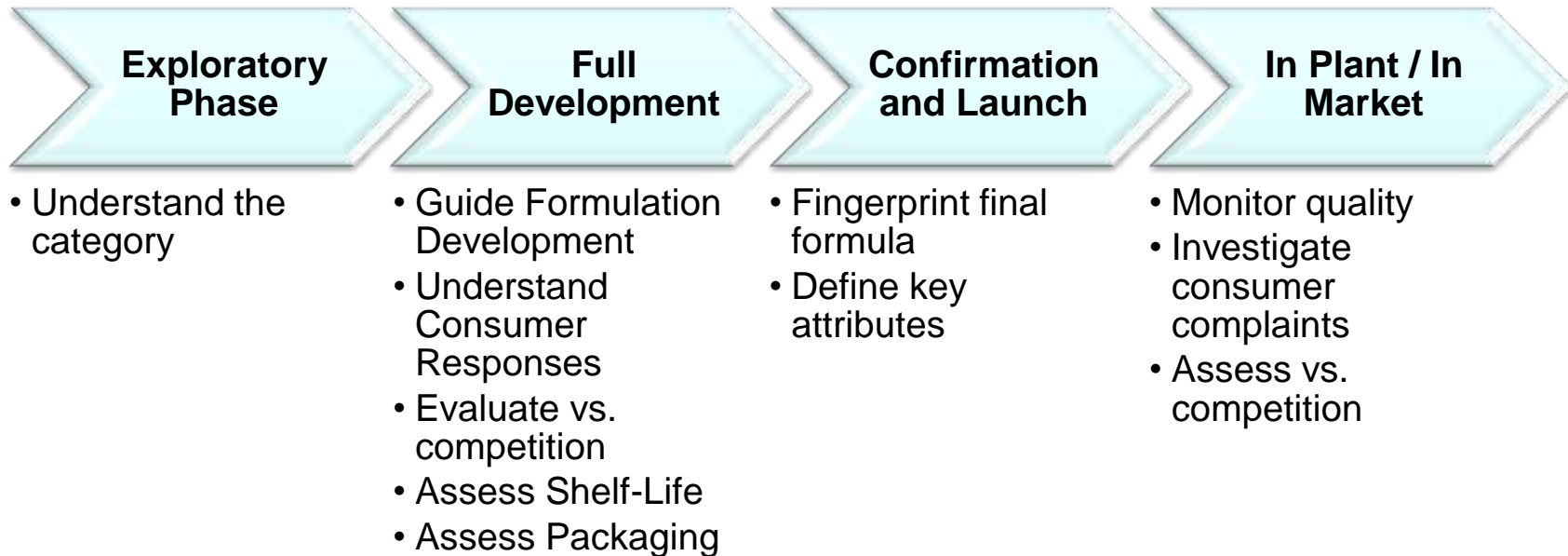
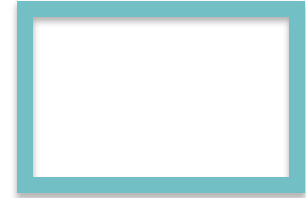
E253 - Standard Terminology Relating to Sensory Evaluation of Materials and Products

Descriptive analysis, *n* – any method to describe and quantify the sensory characteristics of stimuli by a panel of trained assessors.

Additional definitions include:

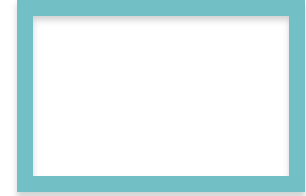
- ❖ Sensory **profile**
- ❖ Partial sensory **profile**
- ❖ Qualitative sensory **profile**
- ❖ Quantitative sensory **profile**
- ❖ Free-choice **profiling**

Descriptive Analysis – *Has Broad Application*



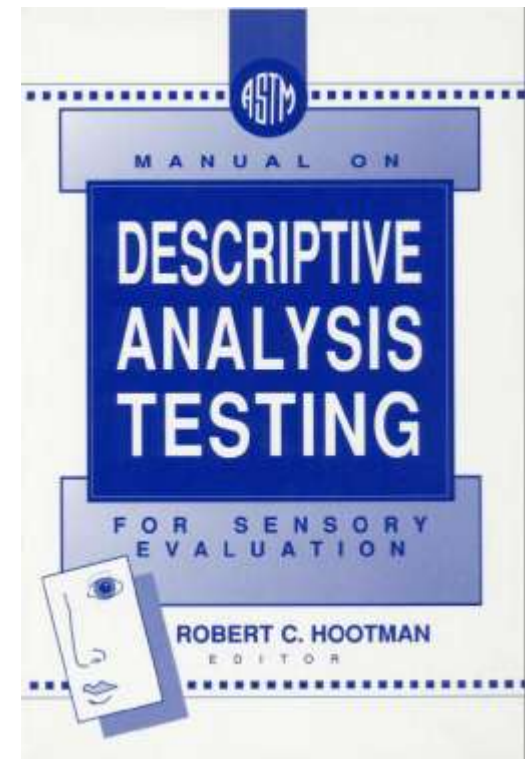
ASTM has numerous manuals and documents related to “trained assessors” and their application to food products.

Classic Descriptive Methods

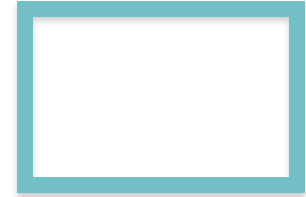


MNL13 - Manual on Descriptive Analysis Testing for Sensory Evaluation

- The Flavor Profile
- Quantitative Descriptive Analysis
- The Spectrum Descriptive Analysis Method
- The Texture Profile



Useful Training-Related Documents



DS72 - Lexicon for Sensory Evaluation: Aroma, Flavor, Texture and Appearance

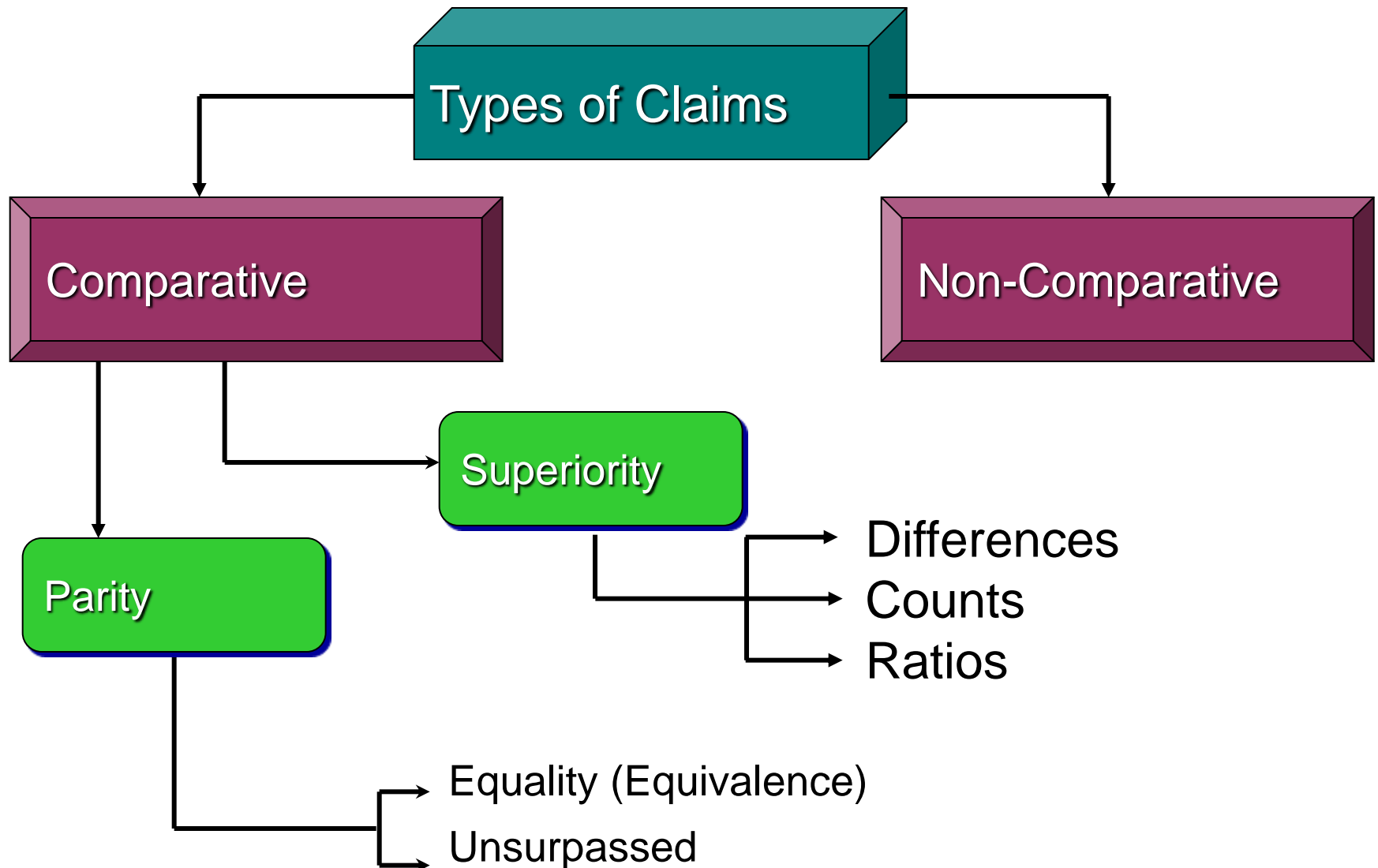
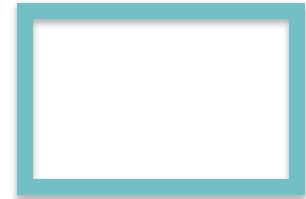


STP 758* - Guidelines for the Selection and Training of Sensory Panel Members

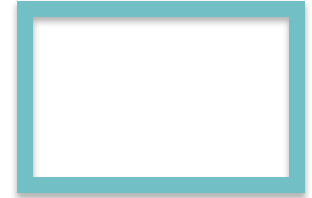


* Published in 1981, but still relevant.

Product Testing in Claims Support



Sensory and Hedonic Methodologies



- Four main method categories:

Sensitivity
(Thresholds)

When can the signal be detected?

Intensity

Difference

Are two products equivalent or different?

Intensity

Usually direct comparison

Descriptive
(Ratings)

Are two products equivalent or different?

Intensity

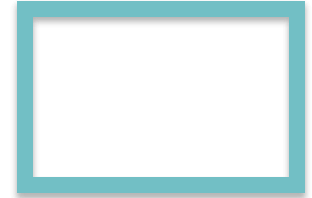
Usually sequential monadic

Hedonic

Are two products equally liked or is one preferred?

Preference

**Direct comparison or
sequential monadic**



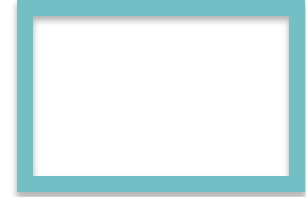
- E1958:

*Standard Guide for Sensory Claim
Substantiation*



“This guide covers reasonable practices for designing and implementing sensory tests that validate claims pertaining only to the sensory or perceptual attributes, or both, of a product.”

WHAT IS CULTURE?

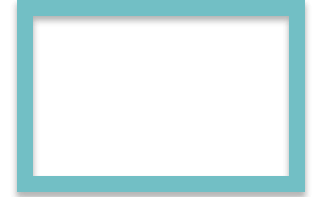


**“THE UNIVERSAL HUMAN CAPACITY TO
CLASSIFY, CODIFY AND COMMUNICATE
THEIR EXPERIENCES SYMBOLICALLY AND
SHARE THEM AS A GROUP”**

- **THE LACK OF UNDERSTANDING OF THE CULTURE OF
THE END CONSUMER LEADS TO:**

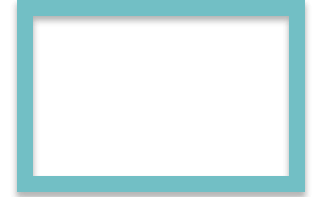
PRODUCT FAILURE

KEY IMPLICATIONS OF CULTURE/ETHNICITY



- **CUSTOMS and ETIQUETTE**
- **RELIGIOUS and CULTURAL BELIEFS**
- **PRODUCT KNOWLEDGE and ATTITUDES**
- **GENDER ISSUES**
- **SOCIOECONOMIC and POLITICAL FACTORS**
- **LANGUAGE**
- **OLFACTORY ENVIRONMENT and FOOD HABITS**

ASTM MNL 55

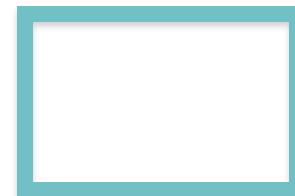


MNL55-EB International Consumer Product Testing Across Cultures and Countries

- **General Principles**
- **17 Country Specific Documents**
- **Published 2007**
- **Authors Alejandra Muñoz and Silvia King plus multiple contributing authors from 17 countries**



PAST TRANSLATION MISCUES



“Come alive with the Pepsi Generation”

Mandarin Chinese: Pepsi brings your ancestors back from the dead



Kentucky Fried Chicken – “Finger-lickin good”

Mandarin Chinese: So good you’ll eat your fingers off



Chevy Nova – General Motors

Spanish: It won’t go



Schweppes Tonic Water

Italian: Schweppes toilet water

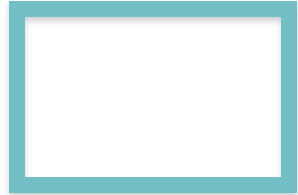


Gerber baby food

Africa: Baby in the jar

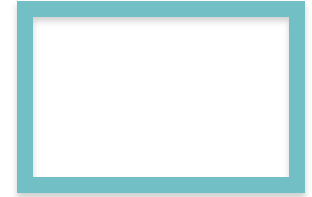


LIVING DOCUMENTS



Original Document – ASTM
E2299-03 Standard Guide for
Sensory Evaluation of
Products by Children

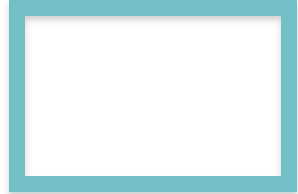
PORTIONS GET OUTDATED



Can no longer be tested with
children

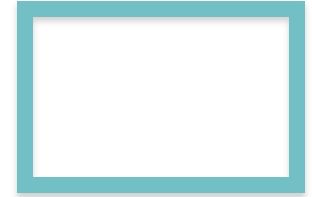
Removed from document

PORTIONS GET OUTDATED



Recruiting children in the park was removed as inappropriate

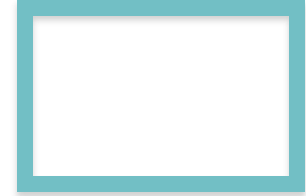
EVERYONE REMEMBERS



ENVIRONMENTAL IMPACT



ASTM E1810 – 12

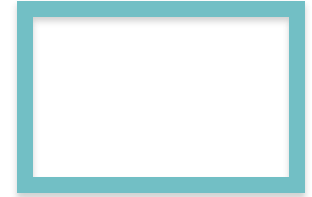


STANDARD PRACTICE FOR EVALUATING EFFECTS OF CONTAMINANTS ON ODOR AND TASTE OF EXPOSED FISH

This procedure is used to determine the effects of water-related contaminants on the odor and taste of exposed fish. This procedure may be used as evidence in showing compliance with regulatory procedures.

This practice is designed for use by fish processors or research laboratories for evaluations by a trained and monitored sensory panel under the supervision of a sensory professional

WHY WE ARE MEMBERS OF E18



To network with the best sensory people in business, government and academia

To learn about leadership and teamwork

To influence the writing of sensory standards

To stimulate your mind

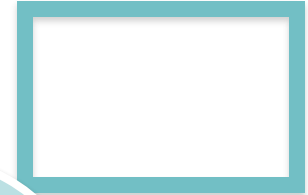
To make lifelong friendships in an inviting and inclusive atmosphere

*At ASTM E18 meetings, the group is small and everyone listens to everyone else's point of view. **You get to know all the people who have and are shaping the field of sensory in the past and today and of course going forward.** Everyone is very friendly and inclusive.*

*ASTM is the **best place in the world to experience the culture and knowledge of Sensory science as it is actually applied in real life.***

Plus the people are really nice and the dinners are great.

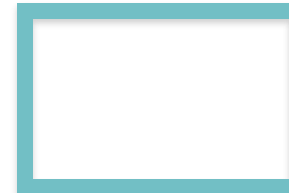
WHY WE ARE MEMBERS OF E18



*Networking with sensory professionals across the spectrum – food/non-food, academics/consultants/industry, some students. Got to work with some famous folks – Dave Peryam, Harry Lawless, Morton Meilgaard, John Powers. And by “working with” I mean all the great discussions around sensory issues that still concern us and hammering out what truly is “best practice”. **It’s difficult as an individual to always know what best practice is, but ASTM is the forum to gain a deeper understanding and come to consensus on what constitutes good methodology.***

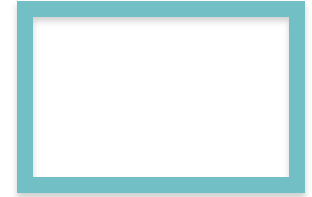
*The opportunity to converse with and learn from leading Sensory experts and pioneers like David Peryam. **The opportunity to interact with other members in an open and transparent process that makes the E-18 standards, guides and practices the finest in the Sensory world today.***

THE BEST VALUE AROUND!



ASTM Pricing	Price
Membership	\$75
Meetings – Twice a year	
Registration - FREE	\$0
2 times per year – Activity Fee	\$50 each
“Little” Stats Seminar – 2 times per year	\$0
Documents – Standards, Manuals, Guides	Range –
The book of Standards is FREE with your Membership	\$0 - \$200

JOIN US



If you are interested in:

- **NETWORKING**
- **LEARNING**
- **INFLUENCING**
- **PROFESSIONAL DEVELOPMENT**
- **MAKING LIFELONG FRIENDS**
- **EATING WELL!**

**JOIN
ASTM
E18**

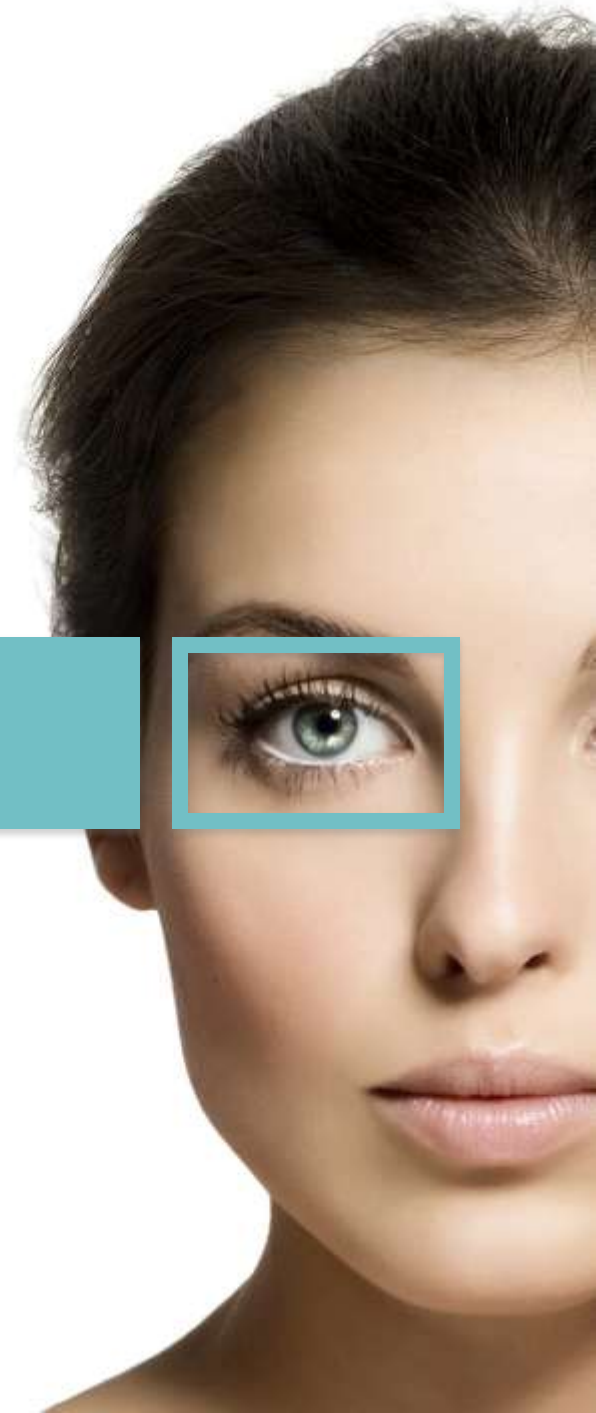
ASTM International Committee E18 Sensory Evaluation

more than meets the eye

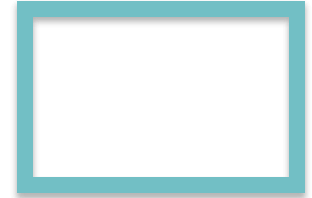
Spring & Fall Meetings

Lapsed and non-members welcome!

April & October



Standards in Sensory? *Really?*



A working collection of “Best Practices” Documents

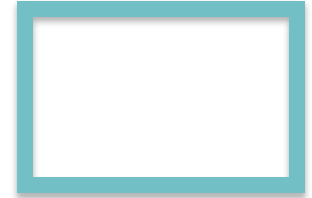
Standard Methods

Standard Guides

Manuals

Seminars & Workshops

What happens at meetings?



Besides creating lifelong professional relationships and friendships . . .

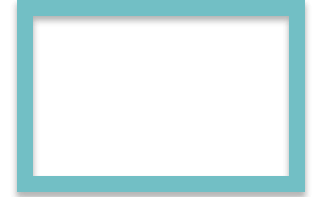
It starts with:

- Discussion
- Debate
- “Respectful” disagreement
- Argument
- Insight
- Consensus
- Writing

And ends with:

- Publication
- Revision

What is ASTM E-18 Today?



Sub-Committees

18.01 Terminology

18.02 ISO

18.03 Sensory Theory and Statistics

18.04 Fundamentals of Sensory

18.05 Sensory Applications – General

18.06 Food and Beverage Evaluations

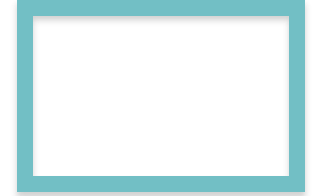
18.07 Person Care and Household Evaluation

18.91 Committee on Subcommittees and Task Groups

18.92 Strategic Planning

18.93 Committee on Communication and Training

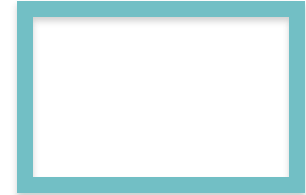
Terminology



Create and update standard terms for sensory evaluation.

Documents	Tasks
Definitions to support standards	Review terms for voting Review negative votes and comments

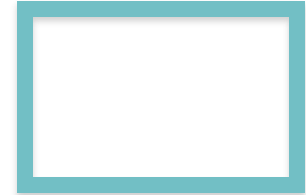
International Standards Organization (ISO)



How do ASTM standards align with our International Colleagues?

Documents	Tasks
	To Liaison with our International Colleagues

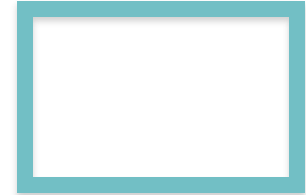
Theory & Statistics



Documents	Status Update
Replicated Discrimination	Creating document.
Panel Performance Tracking	Creating document.
Instrumental Correlations	Creating document.
Time Intensity	Revising document.
No Preference	New Task Group, creating document.
Equivalence	New Task Group, creating document.

Published Documents Include: *Magnitude Estimation, Time Intensity, and Thurstonian Distances*

Fundamentals

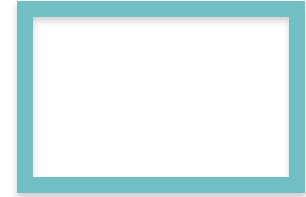


Documents	Status Update
Acceptance/Preference	Creating document.
Scales	Creating document.
Product Sampling	Creating document.
Tetrads	New task group
Right Respondents	Creating document.
Paired Preference	Updated and will be re-balloted

Published Documents Include:

- *Thresholds*
- *Discrimination Testing*
- *Directional Difference*
- *Same-Different*
- *Duo-Trio*
- *Triangle*

Applications

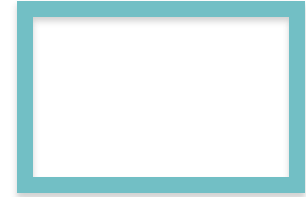


Documents	Status Update
Panelists Feedback	Working on draft document.
Testing with Children	Revision of E2299-11
Sensory Claims Substantiation	Revision of E1958

Published Documents Include:

- *Packaging*
- *Shelf Life*

Food & Beverage

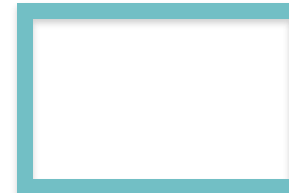


Documents	Status Update
Drinking Water	Working on draft document.
Exposed Fish	Revision of E1810

Published Documents Include:

- *Red Pepper Heat*
- *Fats and Oils*
- *Fish*
- *Alcohols*
- *Standard Serving Protocols*

Personal/Household Care

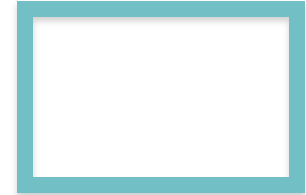


Documents	Status Update
Oral Care	Task Group
Fragrance	New Task Group
Non-Foods Lexicon	Discussion Group

Published Documents Include:

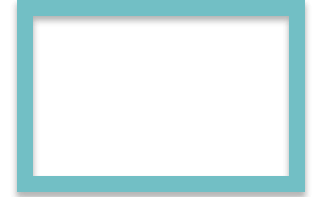
- *Deodorant*
- *Cleaning Products*
- *Shampoo and Conditioners*
- *Air Care/Malodor*
- *Skin Creams and Lotions*

Leadership/Planning Committees



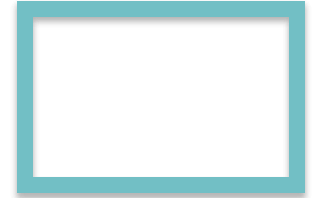
Title	Status Update
Subcommittees & Task Groups	Mentoring and idea generation.
Strategic Planning	SSP was created out of this group
Communication & Training	Internal to ASTM and outreach

ASTM E-18 Across Industries



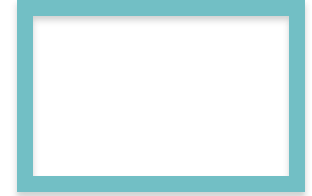
- Food & Beverage
- Personal Care
- Household Care
- *Textiles, Apparel & Footwear*
- *Office Supplies & Equipment*
- *Electronics*
- *Appliances*
- *Automotive, etc.*

ASTM E-18 Across Applications



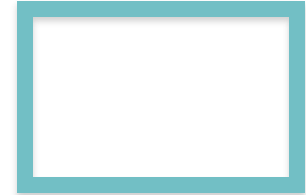
- *Exploration and Innovation*
- *Benchtop Screening & Sorting Tools*
- *Product Development*
- *Product Optimization*
- *Extended Usage Testing*
- *Marketplace Audits*
- *Sensory Specifications*
- *Quality Control & Stability Testing*
- *Advertising Claims*

Call to Action



- ASTM E-18 Staff Contact
 - W. Scott Orthey, sorthey@astm.org
 - www.astm.org
- Please join us in person in April 2013 or virtually!
- Visit the ASTM E-18 booth at SSP.

SSP Workshop - Qualitative



“Bringing Consumers into the Conversation”

Thursday, October 11th, 1:30 – 3:00 pm

- Twitter and Facebook

- TWITTER: Tell us about how to improve the hotel toiletries at the Westin.

Follow us: **@SSP_2012**

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