1898 – PENNSYLVANIA RAILROAD

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

- STANDARDS FOR SUPPLIERS
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

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

135 countries

>30,000 members
IMPACT ON EVERYDAY LIFE

- A01 - Steel
- C01 - Cement
- C26 – Nuclear Fuel Cycle
- F27 – Snow Skiing
- F08 – Sports Equipment
- E05 – Fire Standards
- D13 - Textiles
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
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

Joe Herskovic – ConAgra Foods – IFT Symposium – 2012
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

Exploratory Phase
- Understand the category

Full Development
- Guide Formulation Development
- Understand Consumer Responses
- Evaluate vs. competition
- Assess Shelf-Life
- Assess Packaging

Confirmation and Launch
- Fingerprint final formula
- Define key attributes

In Plant / In Market
- Monitor quality
- Investigate consumer complaints
- Assess vs. competition

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

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

Types of Claims

Comparative

Non-Comparative

Superiority

Parity

Differences
Counts
Ratios

Equality (Equivalence)
Unsurpassed

John Ennis – Institute for Perception – IFT Symposium – 2012
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

“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.”
“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
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
“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
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

Gulf Oil Spill
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

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.

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.
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.
<table>
<thead>
<tr>
<th><strong>ASTM Pricing</strong></th>
<th><strong>Price</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Membership</strong></td>
<td>$75</td>
</tr>
<tr>
<td><strong>Meetings – Twice a year</strong></td>
<td></td>
</tr>
<tr>
<td>Registration - FREE</td>
<td></td>
</tr>
<tr>
<td>2 times per year – Activity Fee</td>
<td>$0</td>
</tr>
<tr>
<td>“Little” Stats Seminar – 2 times per year</td>
<td>$50 each</td>
</tr>
<tr>
<td><strong>Documents – Standards, Manuals, Guides</strong></td>
<td><strong>Range –</strong></td>
</tr>
<tr>
<td>The book of Standards is FREE with your Membership</td>
<td>$0 - $200</td>
</tr>
</tbody>
</table>
JOIN US

If you are interested in:

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

<table>
<thead>
<tr>
<th>Sub-Committees</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.01 Terminology</td>
</tr>
<tr>
<td>18.02 ISO</td>
</tr>
<tr>
<td>18.03 Sensory Theory and Statistics</td>
</tr>
<tr>
<td>18.04 Fundamentals of Sensory</td>
</tr>
<tr>
<td>18.05 Sensory Applications – General</td>
</tr>
<tr>
<td>18.06 Food and Beverage Evaluations</td>
</tr>
<tr>
<td>18.07 Person Care and Household Evaluation</td>
</tr>
<tr>
<td>18.91 Committee on Subcommittees and Task Groups</td>
</tr>
<tr>
<td>18.92 Strategic Planning</td>
</tr>
<tr>
<td>18.93 Committee on Communication and Training</td>
</tr>
</tbody>
</table>
Create and update standard terms for sensory evaluation.

<table>
<thead>
<tr>
<th>Documents</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitions to support standards</td>
<td>Review terms for voting</td>
</tr>
<tr>
<td></td>
<td>Review negative votes and comments</td>
</tr>
</tbody>
</table>
How do ASTM standards align with our International Colleagues?

<table>
<thead>
<tr>
<th>Documents</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To Liaison with our International Colleagues</td>
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</tbody>
</table>
## Theory & Statistics

<table>
<thead>
<tr>
<th>Documents</th>
<th>Status Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replicated Discrimination</td>
<td>Creating document.</td>
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<tr>
<td>Panel Performance Tracking</td>
<td>Creating document.</td>
</tr>
<tr>
<td>Instrumental Correlations</td>
<td>Creating document.</td>
</tr>
<tr>
<td>Time Intensity</td>
<td>Revising document.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Documents</th>
<th>Status Update</th>
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</thead>
<tbody>
<tr>
<td>Acceptance/Preference</td>
<td>Creating document.</td>
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<tr>
<td>Scales</td>
<td>Creating document.</td>
</tr>
<tr>
<td>Product Sampling</td>
<td>Creating document.</td>
</tr>
<tr>
<td>Tetrads</td>
<td>New task group</td>
</tr>
<tr>
<td>Right Respondents</td>
<td>Creating document.</td>
</tr>
<tr>
<td>Paired Preference</td>
<td>Updated and will be re-balloted</td>
</tr>
</tbody>
</table>

**Published Documents Include:**

- Thresholds
- Discrimination Testing
- Directional Difference
- Same-Different
- Duo-Trio
- Triangle
## Applications

<table>
<thead>
<tr>
<th>Documents</th>
<th>Status Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panelists Feedback</td>
<td>Working on draft document.</td>
</tr>
<tr>
<td>Testing with Children</td>
<td>Revision of E2299-11</td>
</tr>
<tr>
<td>Sensory Claims Substantiation</td>
<td>Revision of E1958</td>
</tr>
</tbody>
</table>

**Published Documents Include:**

- Packaging
- Shelf Life
### Documents

<table>
<thead>
<tr>
<th>Documents</th>
<th>Status Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking Water</td>
<td>Working on draft document.</td>
</tr>
<tr>
<td>Exposed Fish</td>
<td>Revision of E1810</td>
</tr>
</tbody>
</table>

**Published Documents Include:**

- *Red Pepper Heat*
- *Fats and Oils*
- *Fish*
- *Alcohols*
- *Standard Serving Protocols*
## Personal/Household Care

<table>
<thead>
<tr>
<th>Documents</th>
<th>Status Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Care</td>
<td>Task Group</td>
</tr>
<tr>
<td>Fragrance</td>
<td>New Task Group</td>
</tr>
<tr>
<td>Non-Foods Lexicon</td>
<td>Discussion Group</td>
</tr>
</tbody>
</table>

**Published Documents Include:**

- Deodorant
- Cleaning Products
- Shampoo and Conditioners
- Air Care/Malodor
- Skin Creams and Lotions
<table>
<thead>
<tr>
<th>Title</th>
<th>Status Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subcommittees &amp; Task Groups</td>
<td>Mentoring and idea generation.</td>
</tr>
<tr>
<td>Strategic Planning</td>
<td>SSP was created out of this group</td>
</tr>
<tr>
<td>Communication &amp; Training</td>
<td>Internal to ASTM and outreach</td>
</tr>
</tbody>
</table>
## ASTM E-18 Across Industries

<table>
<thead>
<tr>
<th>Industry</th>
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<tbody>
<tr>
<td>Food &amp; Beverage</td>
</tr>
<tr>
<td>Personal Care</td>
</tr>
<tr>
<td>Household Care</td>
</tr>
<tr>
<td>Textiles, Apparel &amp; Footwear</td>
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<tr>
<td>Office Supplies &amp; Equipment</td>
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<tr>
<td>Electronics</td>
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<tr>
<td>Appliances</td>
</tr>
<tr>
<td>Automotive, etc.</td>
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<tr>
<td>Applications</td>
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<tr>
<td>--------------------------------------------------</td>
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<tr>
<td>Exploration and Innovation</td>
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<tr>
<td>Benchtop Screening &amp; Sorting Tools</td>
</tr>
<tr>
<td>Product Development</td>
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<tr>
<td>Product Optimization</td>
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<tr>
<td>Extended Usage Testing</td>
</tr>
<tr>
<td>Marketplace Audits</td>
</tr>
<tr>
<td>Sensory Specifications</td>
</tr>
<tr>
<td>Quality Control &amp; Stability Testing</td>
</tr>
<tr>
<td>Advertising Claims</td>
</tr>
</tbody>
</table>
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.
“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

- **FACEBOOK**: Give us your opinion via Facebook.
  
  **Search for** SSP_2012

---

**Student Volunteer Opportunities**

see Nancy Peper, McCormick