

**S**ensory evaluation is used to measure, analyse and interpret characteristics of materials as they are perceived by the senses of sight, smell, taste, touch and hearing. While initially used for foods and beverages, the techniques are also applicable to all products, including cosmetics and personal care products, soaps, detergents, households, etc.

In developing a cosmetics product, recognized tests have to be carried out. Some of them are instrumental, e.g., pH, viscosity and rheology, while others are sensory, e.g. appearance, feel on the skin when applied and in time (minutes or days later) aroma, etc. While the former type of evaluations is necessary to understand the physico-chemical behaviour of the product, the latter are perceptive characteristics that cannot be measured by instruments and easily quantified. Thus, sensory perception has to be resolved by sensory analysis.

### SENSORIAL TESTS

A variety of tests and standard procedures are used for the sensory evaluation as shown in Table 1. Unlike a food or beverage, one cannot simply taste a skin care product, such as hand lotion. Therefore, the major challenge is to design tests to capture feedback the uniqueness or properties of the product. All the tests used require appropriately qualified subjects.

For descriptive analysis, the subjects must first be qualified discriminators with demonstrated abil-

ity to describe the products by specific attributes and score their relative intensity objectively with high accuracy and reliability. For sensory affective testing, the subjects are qualified based on product liking and preference.

### DISCRIMINATIVE ANALYSIS

Discriminative tests allow detection of sensorial differences between products (Figure 1). They give only generic information about the products (are they different or not?), but do not quantify the difference. Several tests are used:

- triangle;
- duo-trio;
- paired comparison (difference); and
- ranking.

Discriminative tests are very useful in new product development, product improvement, formulation changes, quality control and storage stability.

### DESCRIPTIVE ANALYSIS

Descriptive analysis represents one of the most sophisticated sensory methods, allowing a complete and accurate sensory description of a product. Products are evaluated one by one by a well-trained panel, according to specific protocols of evaluation. The sensorial attributes are identified and quantitatively evaluated according to special scales. The sensorial profiles can be compared by star diagrams or linear graphics.

TABLE 1. CLASSIFICATION OF SENSORY TESTS

Analytical	
Discriminative	To determine a perceived difference between the products
Descriptive	To describe the differences between products and the relative intensities of their attributes
Affective	
Hedonic	To measure liking/preference

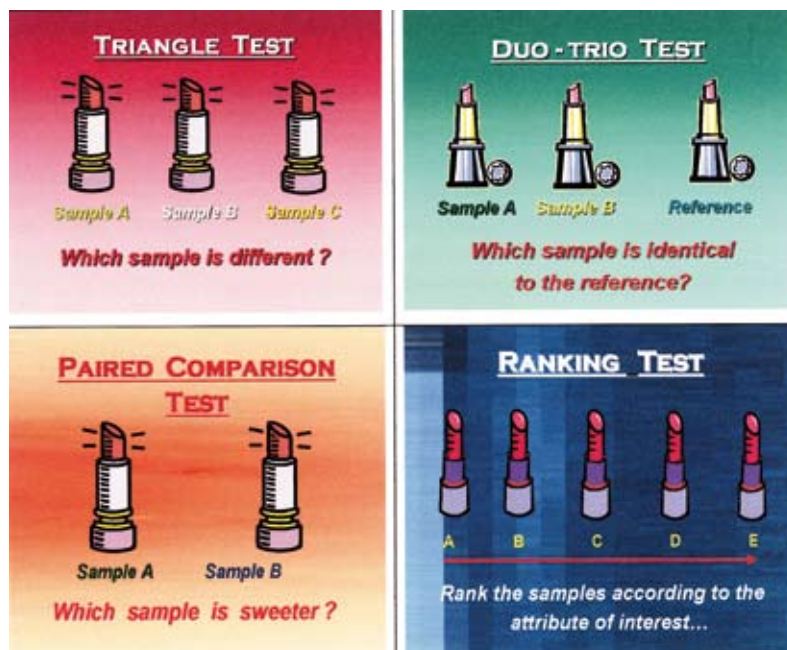


Figure 1. Types of discriminative tests.

Hair conditioners: sensorial profiles of five types

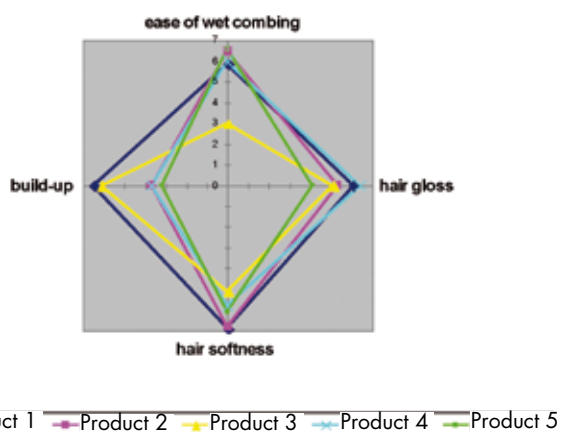


Figure 2. Star diagram representation.

An example of descriptive analysis for five conditioners based on a star diagram is shown in Figure 2 and a sensory evaluation of various oils based on linear graphics is presented in Figure 3.

Descriptive analysis can be applied in many cosmetics fields, such as new product development, quality control, storage stability, correlating sensory aspects with chemical and physical results, product maintenance and interpretation of consumer responses.

### CONCLUSION

Sensory evaluation is now established to complement the efficacy evaluation of cosmetics and personal care (CPC) products. MPOB, through

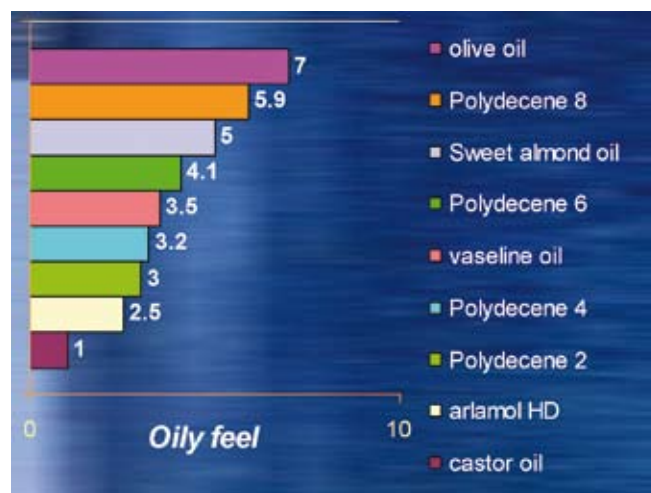


Figure 3. Linear graphic representation.

its Advanced Oleochemical Technology Division (AOTD), has become a one-stop centre for CPC products evaluation for safety, efficacy, physical testing and sensory evaluation.

For more information kindly contact:

Director-General  
MPOB  
P. O. Box 10620  
50720 Kuala Lumpur, Malaysia.  
Tel: 03-87694400  
Website: <http://mpob.gov.my>  
Telefax: 03-89259446