Establishing Hair Care Sensory Testing Capabilities

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Abstract

Sensory evaluation is a scientific discipline used to investigate human response to a stimulus involving the five senses. Sensory properties can be assessed using a wide range of test methods. Today, the sensorial aspect of a product directly influences consumers' choices and preferences.

We are a global leader in speciality chemicals, sold into a wide range of markets from Consumer Care and Personal Care to Industrial Specialities. Within the Sun Care and Biotechnology business, the company has recently developed an in-house trained sensory panel to meet the growing demand for consumer relevant data, in the hair care market. This article presents a training method to establish a hair care sensory panel and examines a selection of existing products in our Biopolymer portfolio.

Introduction

Hair is composed of 70% proteins. These proteins can be classed into two groups: Keratins and Keratin Associated Proteins (KAPs). We have more than 40 years' experience in manufacturing protein derivatives in order to address the needs of the hair care market.

Sensory evaluation is "a scientific method used to evoke, measure, analyse and interpret reactions to those characteristics of food and materials as they are perceived by the senses of sight, smell, taste and hearing"[1]. This definition was written for the food industry, as it was the first to investigate the human reactions to measured stimuli. It has since been adopted by many other industries such as cosmetics, paints and automotive.

Subjective studies collect data about a consumer's preferences, whilst objective studies establish perception thresholds and quantified responses.

The objective studies require that a group of people are trained to give quantitative answers, unbiased by their own preferences. Objective sensory includes tests such as triangle, paired and ranking tests[2]. To evaluate several attributes and products in one study, a profiling test is preferred where each attribute evaluated is marked against a quantitative scale and against a control.

Hair sensory evaluation is a rising discipline in the Personal Care industry. Companies are developing in–house methods to collate sensory data that is used to create consumer relevant marketing packages. These techniques involve a source of hair (*ex vivo* tresses or *in vivo* salon testing) and a trained panel to assess the characteristics of the hair and treatments.

There are different types of sensory panel that can be established, depending on the question to be addressed, subjective or objective and the resources available. To produce a statistically reliable data set, the number of panellists required can vary depending on their level of training. The three main types of panel are:

- An untrained or consumer panel will require between 50 and 200 panellists.
- A trained panel is generally composed of 10 to 20 panellists, trained on a regular basis to rank the product against set benchmarks.
- An expert panel is a group of two to five people as reliable as machines, trained every week and running sensory evaluation studies as a full time job.

The present article describes setting up a trained panel composed of 15 people studying the effects of protein derivatives on the sensorial aspects of human hair.

Protocol Development

For a given product, each attribute is marked against a numerical scale from 1 (poor) to 9 (good). Like any new piece of equipment, the panel needs to be calibrated in order to produce accurate measurements. The calibration step can be a long process but is necessary to achieve statistical reproducibility.