



## ANNEX II: Sensory Profiling

This summary describes the overall process for determining a sensory profile. A sensory profile is a descriptive analysis of a sample by a panel of trained assessors. Assessors can be trained and validated using methods as described in ISO 13299 and 3972. Sensory profiling is based on the concept that the overall sensory impression obtained from a sample consists of a number of identifiable sensory attributes (descriptors), each of which is present to a larger or smaller degree. The list of all relevant sensory descriptors, each with its intensity value, is the sensory profile. The descriptors are flavour dependant, i.e. a strawberry flavour will not have the same descriptors as an orange flavour. The latter may e.g. have a “peely” attribute which is not present in strawberries. The panel has been trained to recognize each descriptor by assessing typical molecules or blend of molecules that corresponds to that specific descriptor, like ethyl butyrate for fruitiness.

The procedure is specifically aimed at comparing the sensory profile of one food with that of another or particularly in this case, comparing the sensory profile of a food containing one flavouring with that of the same food containing a different flavouring. This is based on the sensory testing/profiling by a group of assessors using the same list of attributes as described amongst others in ISO 13299 and making comparisons between the samples with statistical analysis.

A maximum of 8 samples are presented in a tasting session. The exact number of samples will depend on their complexity. Several sessions can be organized if more samples need to be evaluated.

An established protocol should be followed by all assessors for rinsing their mouth and cleansing their palate prior to and during evaluations. Assessors should be instructed not to eat, drink and smoke 30 minutes before each evaluation session and to carefully listen to the instructions and carefully read the questionnaires.

The assessors score each sample on a pre-selected set of attributes and scales. The attributes (sensory descriptors) are chosen by the study director from the attributes relevant for the specific flavour.

The procedure summary is as follows:

- The test samples are prepared and identified by a three digit code that is known only to the study director.
- An example of how intensity can be expressed: Assessors assign appropriate intensity ratings for each descriptor on a “0 to 5” structured scale graduated at every half point (and where 0=null, 1=very weak, 2=slightly weak, 3=moderate, 4=slightly strong, 5=strong).
- To increase the reliability of the results, repeat presentations of the same samples can be made (duplication), ideally in a different order and different coding,
- ISO 13299- 2003 defines 8-10 assessors as the minimum assessors in a trained expert panel to establish sensory profiling
- The results from each assessor are combined to give an average and are examined statistically with e.g. ANOVA (Analysis of variance) or student’s t test in order to define significance of differences between each sample for each individual sensory descriptor. For these analyses, the mean intensity scores are statistically compared to determine where significant differences occur. (Statistical significance is established with a confidence level of 90% or 95%). If ANOVA is used a multiple comparison test should be employed to specify the differences among the samples. Data are usually plotted graphically on a spider chart and/or a PCA (Principle Component Analysis) plot.