

1 Basic Requirements for Sensory Analysis and Conducting Tests

1.1 Tasting Room, Preparation Area

Tasting Room

The tasting room should provide an ideal setting for performing sensory analysis under defined, structured and reproducible conditions.

The tasting room should be easily accessible to those taking part in the sensory analysis. However, the tasting room should not be located in a heavily trafficked area (e.g. near a cafeteria), unless measures have been taken to reduce noise and other disruptive influences. The tasting room must be made accessible to mobility-impaired persons.

It is desirable for there to be an area set aside where the members of the tasting panel can assemble before they enter the tasting room. These areas should be hygienically sound and easy to clean.

Location

The tasting room should be in close proximity to the preparation area, in order to enable the samples to be quickly distributed to the participants; however, there should be ample distance between the two rooms so that distractions, e.g. noise or odors, are negligible.

The tasting panel cannot be allowed to enter the preparation room, even simply to pass through it to reach the tasting room, since this can produce a systematic bias in the results of the sensory analysis.

Temperature and Humidity

The temperature in the space, where the sensory analysis is being held, must be regulated and adjustable. This should also be the case for the relative humidity, if the product under analysis can be affected by it.

As a general rule, the ambient temperature should be pleasant for the tasting panel, unless the product under analysis requires special conditions. An appropriate ambient temperature is 20 °C with a relative humidity of 45–75 %.

Noise

The noise level during the sensory analysis must be kept to an absolute minimum. Therefore, it is recommended that the floor of the room be able to attenuate sound well, so that noise from people walking or movement of objects around the room is kept to a minimum.

Odors

The rooms dedicated to sensory evaluation must be kept free of odors to the fullest extent possible. This can be accomplished with the installation of a ventilation system equipped with activated charcoal filters. If deemed necessary, the space where the sensory analysis takes place should remain slightly above atmospheric pressure to ensure that penetration of this space by air from outside is minimal.

The tasting room must be constructed of materials, which can easily be cleaned and are odor-neutral. Likewise, no odors should emanate from any of the furnishings, e.g. flooring, chairs, etc., which might disturb sensory analysis. If it were necessary to use a laboratory for this purpose, the textile surfaces, capable of absorbing odors and unable to be properly cleaned, would need to be removed from the space in question. Odor-neutral cleaning agents would be required in cleaning the laboratory in preparation for sensory analysis.

Color Scheme

The color of the walls and fixtures in the tasting room must be neutral, so that the sensory evaluation is not impacted by them in any way (e.g. the color of the samples and a distraction for the tasters). It is recommended that the walls be matte colors over off-white, the surfaces of the workspace be light grey and the floor and chairs be dark grey.

Lighting

The light source, the type of lighting and the luminosity are of great significance for sensory analysis of any kind. The lighting in all of the rooms and also in each cubicle of the tasting room must be identical and remain consistent. Strongly contrasting shadows must be avoided, and ideally the light source should be adjustable.

The light source most suitable for creating the desired lighting conditions should be chosen.

Example: light sources with a color temperature of approximately 6500 K deliver a satisfactory, neutral light, similar to “northern daylight”. Light sources between 5000 and 5500 K with a high color-rendering index can be used to simulate “daylight at noon”.

A defined level of illumination would ostensibly be most important for judging the color of products or materials. Special lighting devices may also be necessary for masking differences in color or appearance, which are deemed negligible and should not be considered in evaluating the material under analysis.

Among the devices, which may be used for this purpose, are the following:

- a dimmer switch
- colored lighting
- color filters
- a black light
- chromatic light sources, such as sodium vapor lamps

For testing involving consumers, lighting should be selected, which simulates the lighting most often encountered when consuming the product. For this reason, the lighting is dependent upon the type of testing being performed.

Safety Considerations

All of the safety considerations valid for laboratory work are also pertinent for tasting rooms, e.g. the exhaust hoods typical in laboratories should be used for odor analysis, in addition to chemical scrubbers, if chemicals are present, and most especially fire safety measures, if cooking or heating are to take place.

Independent of the type of laboratory, emergency exit signs should be located where appropriate.

Cubicles for Individual Tasting Panel Members

In many cases, independent, personal evaluation of the food or beverage subject to sensory analysis is required. Members of the tasting panel often employ individual cubicles to eliminate any distractions or communication among members, in order to ensure that their results remain impartial.

Number of Cubicles

The number of cubicles, which should be constructed in the tasting room, is determined by the available space and the type of sensory analysis planned for the room. The number of cubicles constructed in the available space must still allow ample room for movement and the distribution of samples from the preparation room.

Construction

Although it is recommended that permanent cubicles be installed in the tasting room, temporary usage of collapsible cubicles can be employed should the need arise.

If the cubicles are built along a wall separating the preparation area from the tasting room, it is recommended that they be constructed to allow openings for the samples to be handed through to the cubicles from the preparation area. The openings must be large enough to allow the samples to be handed through without difficulty, and they must be equipped with quiet sliding doors or service hatches. Supplying a diagram, which displays the configuration of this kind of cubicle, is helpful. It is best if the opening is positioned so that the members of the tasting panel cannot see how the samples are prepared and encoded.

Electrical plugs should be installed in the cubicles for any devices needing electrical power during sensory analysis.

Should data need to be entered electronically by members of the tasting panel, the necessary computer hardware would need to be installed in such a way as to allow the members to concentrate on the sensory analysis at hand. For instance, the computer screen would need to be mounted at a comfortable height, and glare from the screen should be minimal. As a rule, a screen saver should not be engaged. The keyboard or other input device should be placed in an ergonomically suitable position, where it does not interfere with evaluation of the samples.

If the samples are not distributed among the members of the panel at regular intervals, a signaling system must be developed so that the members can indicate when they are ready for the next sample.

This is especially important, if a wall separates the preparation area from the tasting room. A signal light in the preparation area would be sufficient or even a card that can be pushed through the service hatch.

It is helpful to number or otherwise label the cubicles to be able to determine the position of the tasting panel member.

Arrangement and Size

The work surface in every cubicle must be sizeable enough to accommodate the following without difficulty:

- samples
- any supplementary devices
- spit bucket
- a basin for washing or spitting, if necessary
- substances to “neutralize” the senses
- questionnaire and writing utensils or data entry devices

The work surface must provide enough room for filling out a questionnaire or for the use of computer hardware to input the relevant data.

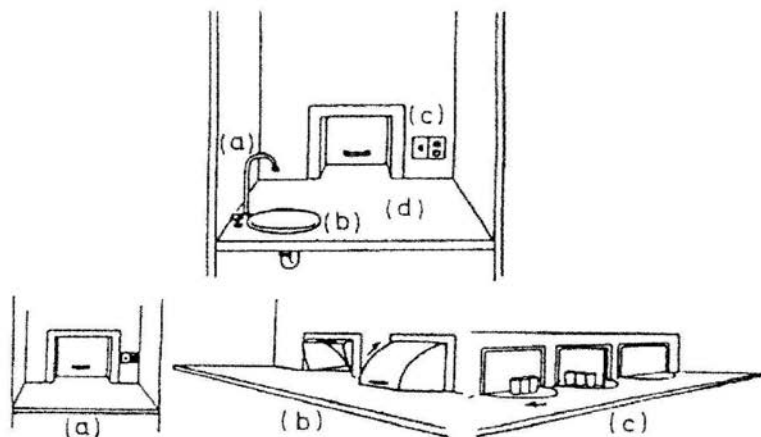
It is recommended that the work surface be at least 0.9 m wide and 0.6 m deep. If additional devices or equipment are required in the cubicle, then the area of the work surface should be larger. The height of the work surface in the cubicle must allow for a member of the tasting panel to perform the sensory analysis in a comfortable position (standard table height: 0.75–0.90 m). The sidewalls between the cubicles should be deeper than the work surface – an excess depth of 0.3 m is adequate – so as to better isolate the members of the tasting panel from one another. To ensure complete isolation, the walls of the cubicle should reach from floor to ceiling. This arrangement must also facilitate the requisite ventilation and cleaning of the cubicle.

If the members of the tasting panel are to be seated during the sensory analysis, comfortable seating must be furnished at a height befitting the work surface provided. For seating, which is not adjustable or moveable, a distance of 0.35 m between the work surface and the seating is recommended. If the seating can be moved, then it should be able to be done so quietly.

The cubicles can be equipped with a washbasin or a spit bucket. If drinking water is supplied during the evaluation, then the quality and the temperature must be monitored. A washbasin or spit bucket should only be provided, if either of them is necessary for odor control or for hygienic reasons.

A washbasin equipped with a suction device ensures rapid disposal but can be quite loud.

At least one cubicle should be of a sufficient height and width to accommodate a person in a wheelchair, if required by law.



Upper illustration:
Cubicle with service hatch
(in the background)

- (a) tap water
- (b) small basin (for spitting out samples)
- (c) electrical outlet and switch for signaling the analysis supervisor
- (d) table covered with odor-free plastic or another easy-to-clean surface

Lower illustration:
Three types of service hatches for
receiving and returning sample trays

- (a) sliding door
- (b) conveyer cage
- (c) carousel

Color Design of the Cubicles

The interior of a cubicle should be painted matte grey with a lightness value of approximately 15 % (e.g. N4 to N5 in the Munsell color system). If, however, the colors being compared are light and nearly white, then the interior of the cubicle should be painted with a lightness value of 30 % or higher (e.g. N6 in the Munsell color system), in order to achieve a lower brightness contrast with the colors being evaluated.