

ICE-CREAM & FROZEN DESSERTS





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Module 8. Defects in ice cream

Lesson 24

METHOD OF SENSORY EVALUATION OF ICE CREAM

24.1 Introduction

Ice cream is a frozen food made of a mixture of dairy products, such as milk, cream, and nonfat milk, combined with sugars, flavoring, fruits and nuts, stabilizers and emulsifiers etc. Different types of ice cream are available in the market including economy, premium, super-premium reduced fat, light, low fat ice cream, mellorine, soft serve ice cream, sherbets, ice candy and kulfi. All the above products may differ in the type of flavoring, the composition in terms of dairy ingredients and other food solids, and the extent of product overrun.

24.2 Ice Cream Scoring Technique

Ice cream with no criticisms is considered perfect and is given a score of 10 and 5 in each flavour and body and texture respectively. Ice cream products rarely receive a perfect score. When a defect is identified, the smallest deduction a judge can make is one point. The deduction can increase depending on the severity of the defects identified. Defects are described as slight, definite, or pronounced depending on the intensity of the defect. Those product samples (representative of a lot) that receive a “zero” in any one or more quality categories should or would generally be regarded as unsalable products.

24.2.1 Tempering the samples

Generally, temperatures between -18° and -15°C are satisfactory for tempering ice cream for judging. This can be best accomplished by transferring the ice cream samples from the hardening room to a dispensing cabinet at least several hours prior to judging, or preferably tempered overnight. This ensures that the ice cream tempers uniformly.

24.2.2 Sampling

Generally, a good quality ice cream dipper, scoop, or spade, rather than a spoon, is preferred for obtaining samples. If the product surface has been exposed, then any dried surface layer (to a depth of approximately 0.8 cm) should be removed before securing the

sample for evaluation.

For meltdown test, the petridish should be set in a convenient place (but away from heat sources) where melting qualities may be observed from time to time during the overall evaluation process.

The melting quality may be observed by placing a spoonful of the sample on a dish and noting its meltdown response from time to time, as the other sensory qualities are being examined. Although fiber dishes may be used, petri dishes seem to permit more accurate observation of the melted ice cream; the contrast between the product and the dish background is greater.

While evaluating the melting quality of ice cream some precautions are necessary:

1. Select a uniformly heated, well-lit area for placing and observing the samples (~23°C).
2. Set the sample out for meltdown at the beginning of the judging (if feasible).
3. Absolutely, avoid dipping some of the samples with a warm dipper and others with a cold dipper.
4. Be sure that the sizes of the reasonably small samples used for the meltdown test are uniform in volume (use the same scoop or spoon for each sample).
5. Always use a flat-bottom dish (not a cup), so the melted ice cream is free to spread out.
6. Once melting has started, do not disturb the samples by tilting or swirling the containers.
7. Observe various stages of melting and then score accordingly.

24.3 Order of Evaluation

The state of ice cream changes rapidly when exposed to ordinary temperatures. Therefore it is imperative that the sensory evaluation should be completed in minimum time. An orderly sequence of observations has been found to be most effective in evaluating ice cream for sensory characteristics.

24.3.1 Examine the container

Note the type and condition of the container, the presence or absence of a liner and cover on bulk containers, and any package defects that may be present.

24.3.2 Note the color of the ice cream

24.3.3 Sample the ice cream

24.3.4 Begin judging

Because the sample is too cold at the time of tasting, sense of taste is often impaired. Therefore, use as small or modest a sample as possible to evaluate body and texture.

24.3.5 Sense the flavor

Note, whether the flavor is harsh (coarse) or delicate, mild or pronounced; whether the flavor seems creamy, pleasantly rich, or possesses a pronounced, objectionable, unnatural taste; and whether the mouth readily “cleans up” after the sample has been expectorated.

All samples should be expectorated after completing the flavor evaluation task. Note the melting qualities. By the time the flavor attributes have been determined, the samples previously set aside for the observation of melting properties should have softened

sufficiently to yield an impression of those characteristics.

Observe whether the ice cream sample has retained its form and approximate size, even though some free liquid may have leaked (oozed) out, and whether the melted liquid appears homogenous and creamy, curdled, foamy, or watery (wheying-off).

24.3.6 Record the results

Once all of the sensory observations have been completed, record the sensory observations on a scorecard and assign the appropriate numerical values.

The quality and sensory attributes of ice cream as perceived by the consumer in terms of the most desirable flavor, body and texture can be evaluated but it is not easy. For a successful and dependable sensory evaluation of ice cream and frozen desserts, judges needs to have experience and knowledge about the effect of ingredients, product formulation, processing and handling on the properties of the products. Additionally, due to the uniqueness of frozen desserts, it is important that samples are prepared properly and the evaluation is conducted in a suitable environment.

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