



Standard Practice for Evaluating Effects of Contaminants on Odor and Taste of Exposed Fish¹

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1. Scope

1.1 The flavor quality of fish and shellfish (hereinafter collectively termed “fish”) can be related to their exposure to compounds that might be present in the food chain and the water in which they live. High-quality fresh fish have a low-intensity aroma and flavor impact. Certain compounds might cause deterioration of, or change to, the flavor of the fish’s flesh. Examples of sources of contaminants include wood or other processing effluent, odorants of detergents, microbial genesis, accidents involving petroleum products, industrial sewage, farm runoff, and feedstuffs. Although many known contaminant compounds can be detected by instrumental means, the presence of many unknown contaminants is first detected through odor and flavor evaluation. This practice describes methodology for determination of the effects of water-related contaminants on the odor and taste of exposed live fish, where flavor impairment is a suspected issue. This practice supersedes the sensory evaluation procedures detailed in Practice [D3696](#).

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Specific hazards statements are given in Section [7](#).

2. Referenced Documents

2.1 ASTM Standards:²

[D3696 Practice for Evaluating an Effluent for Flavor Impair-](#)

[ment to Fish Flesh](#) (Withdrawn 2006)³

[E253 Terminology Relating to Sensory Evaluation of Materials and Products](#)

[2.2 Federal Documents:](#)⁴

[21 CFR Part 50 Protection of Human Subjects](#)

3. Terminology

3.1 *Definitions: Definitions*—See Terminology [E253](#).

4. Summary of Practice

4.1 Fish that are suspected of having been exposed to contamination are to be processed and maintained for sensory analysis in accordance with appropriate manufacturing practices. After cleaning and evisceration, fish are wrapped in protective covering such as aluminum foil (which will not impact flavor), placed in labeled plastic bags, and maintained at 4°C or below, necessary for preservation of the product. Samples must be frozen if sensory testing cannot be conducted within 24 h. Immediately prior to sensory testing, the fish are thawed under refrigeration, if frozen, and homogeneous composite samples are prepared. Individually foil-wrapped aliquots of 20-g fish (sufficient to provide all panelists with nearly identical samples for testing) are steamed and presented to trained sensory panelists for odor or flavor evaluation, or both.

5. Significance and Use

5.1 This procedure is used to determine the effects of water-related contaminants on the odor and taste of exposed fish. This procedure may be used as evidence in showing compliance with regulatory procedures.

5.2 This practice is designed for use by fish processors or research laboratories for evaluations by a trained and monitored sensory panel under the supervision of a sensory professional.

6. Apparatus

6.1 *Aluminum Foil*, heavy-duty, approximately 0.5-mm thickness, or

¹ This practice is under the jurisdiction of ASTM Committee [E18](#) on Sensory Evaluation and is the direct responsibility of Subcommittee [E18.06](#) on Food and Beverage Evaluation.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ *Code of Federal Regulations*, available from the U.S. Government Printing Office, Washington, DC 20402.