

Chapter ATCP 70

APPENDIX A

SMOKED FISH PROCESSING

Federal regulations under [21 CFR 123](#) require fish processing plant operators to prepare hazard analysis and critical control point (HACCP) plans to address foreseeable hazards associated with fish processing operations (see also ATCP 70.18). Plans must meet minimum standards specified in [21 CFR 123](#). Under [21 CFR 123](#), Part B, operators of smoked fish and smoke-flavored fish products must include, in their HACCP plans, steps to address botulism risks. Operators of smoked fish processing plants may wish to include the following *suggested* procedures, as applicable, in their HACCP plans:

(1) Salting or Brining

- (a) Before any fish is smoked, it shall be dry salted or brined so that the amount of water-phase salt in the loin muscle of the finished smoked fish meets applicable requirements under subs. (2) to (4). The fish shall be rinsed with fresh water immediately after it is removed from the salt or brine.
- (b) Throughout the dry salting or brining process under par. (a), fish and brine shall be kept at a temperature of not more than 38° F. (3° C.).
- (c) A fish processing plant operator shall test each type of finished smoked fish product at least quarterly, using an official method of analysis, to ensure that the fish contains the amount of salt required under par. (a). The operator shall retain test records at the processing plant for at least 6 months, and shall make the records available to the department for inspection and copying upon request.

(2) Air Packaged Hot-Process Smoked Fish. Air packaged hot-process smoked fish shall be processed as follows:

- (a) Each fish shall be brined under sub. (1), so that the finished smoked fish contains at least 2.5% water-phase salt.
- (b) Each fish shall be heated so that the entire fish is held at a continuous internal temperature of at least 145° F. (63° C.) for at least 30 minutes.

(3) Hot-Processed Smoked Fish In Reduced Oxygen Packages. Hot-processed smoked fish packaged in reduced oxygen packages shall be processed as follows:

- (a) Each fish shall be brined under sub. (1) so that the finished smoked fish contains at least 3.5%

water-phase salt, except that fish brined with a sodium nitrite solution containing not less than 100 parts per million nor more than 200 parts per million of sodium nitrite may be brined so that the finished smoked fish contains at least 3.0% water-phase salt.

- (b) Each fish shall be heated so that the entire fish is held at a continuous internal temperature of at least 145° F. (63° C.) for at least 30 minutes.

(4) Cold-Process Smoked Fish. Cold-process smoked fish shall be processed as follows:

- (a) Each fish shall be dry salted or brined so that the finished smoked fish contains at least 3.5% water-phase salt, except that:
 1. Fish brined with a sodium nitrite solution containing not less than 100 parts per million nor more than 200 parts per million of sodium nitrite may be brined so that the finished smoked fish contains at least 3.0% water-phase salt.
 2. Fish which is frozen immediately after smoking, and which remains frozen until sold to consumers at retail, may be brined so that the finished smoked fish contains at least 2.5% water-phase salt. The fish shall be labeled according to s. [ATCP 70.19\(1\)\(e\)](#).
- (b) Each fish shall be smoked at a temperature of not more than 90° F. (32° C.) for not more than 20 hours, or at a temperature of not more than 50° F. (10° C.) for not more than 24 hours.

(5) Temperature Records. Every smokehouse shall be equipped with a temperature recording device, which is designed, installed and maintained to make a continuous record of the internal temperatures of smoked fish. The temperature recording device shall record the internal temperature of the loin muscle of fish, which are located in the coldest portion of the smokehouse. For every lot of fish smoked, a fish processing plant operator shall keep a time-temperature recording chart that identifies the specific oven or chamber load and the processing date. Time and temperature records shall be kept on file in the smoked fish processing plant for at least 6 months. Temperature recording devices shall be accurate to within one degree Fahrenheit or 0.5° Celsius.