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DRAFT EAST AFRICAN STANDARD

Processing and handling of smoked fish, smoke-flavoured fish, smoke-dried fish and smoked fish products — Code of practice

EAST AFRICAN COMMUNITY

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

DEAS 898 was prepared by Technical Committee EASC/TC 003, *Fish and fishery products*.

Processing and handling of smoked fish, smoke-flavoured fish, smoke-dried fish and smoked fish products — Code of practice

1 Scope

This Draft East African standard provides guidelines for processing, handling and storing of smoked fish, smoke-flavoured fish, smoke-dried fish and smoked fish products intended for human consumption. This code of practice applies to all fish species.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EAS 12, *Potable water — Specification*

EAS 35, *Fortified food grade salt — Specification*

EAS 62-1, *Fish handling and processing — Code of practice — Part 1: Fresh fish*

EAS 832, *Fish industry — Operational cleanliness and hygiene — Guidelines*

EAS 876, *Smoked fish, smoke flavoured fish, smoke dried fish and fish products — Specification*

3 Terms and definitions

For the purposes of this standard, the following terms and definitions shall apply.

3.1

fish

any of the cold-blooded (ectothermic) aquatic vertebrates. It does not include amphibians and aquatic reptiles

[any shellfish or cold-blooded (ectothermic) aquatic vertebrates with fins.]

smoking

a process of treating fish by exposing it to smoke from smoldering wood or plant materials.

3.2

hot smoking

process in which fish is smoked at an appropriate time/temperature combination sufficient to cause the complete coagulation of the proteins in the fish

3.3

cold smoking

process of treating fish with smoke using a time/temperature combination that will not cause significant coagulation of the proteins in the fish but that will cause some reduction of the water activity

3.4

smoke condensates

products obtained by controlled thermal degradation of wood in a limited supply of oxygen (pyrolysis), subsequent condensation of the resultant smoke vapours, and fractionation of the resulting liquid products

3.5

smoke flavours

smoke condensates or artificial flavour blends prepared by mixing chemically defined substances in known amounts or any combination of both (smoke preparations)

3.6

smoked fish

fish that has undergone a hot or cold smoking process

3.7

smoke-flavoured fish

product prepared from fish that has been treated with smoke flavours, without undergoing the smoking process

3.8

smoke-dried fish

product prepared from fish that has undergone a combined smoking and drying process and may include salting

3.9

food grade container

packaging made of materials which are safe and suitable for their intended use and which will not impart any toxic substance or undesirable odour, colour or flavour to the product

4 Handling and processing

4.1 Raw materials

4.1.1 The fish used to prepare smoked fish, smoke-flavoured fish, smoke-dried fish and smoked fish products should be from any fish species which is sound and wholesome, fresh, chilled or frozen and fit for human consumption and shall be handled in accordance with EAS 62-1.

4.1.2 The salt used should conform to EAS 35.

4.1.3 Water used in the preparation of the product shall comply with EAS 12.

4.2 Plant facilities and operating unit

Plant facilities and operating unit for processing of smoked fish, smoke-flavoured fish, smoke-dried fish and smoked fish products should be made of food grade material and easily cleanable.

The facilities and operating unit should be maintained in a state of hygiene that conforms to EAS 832.

4.3 Wood or plant material

4.3.1 The wood or plant material for smoking should be dry enough and free from contaminants such as natural toxins, chemicals or paint.

- 4.3.2 Wood or plant material of types not suitable for smoke production should not be used.
- 4.3.3 Wood containing mould or fungus may impart off-flavours and odours, and should not be used.
- 4.3.4 Wood or plant material for smoking should be stored in a dry and protected place.
- 4.3.5 Contamination during transportation and storage should be avoided.

4.4 Smoke condensate

- 4.4.1 Smoke condensate should come from a reputable reliable source and should be approved by the competent authority.
- 4.4.2 Containers with smoke condensate should be stored in a dry and clean place.
- 4.4.3 Containers with smoke condensate should be adequately labelled with information such as the type of wood used, name and physical address of producer and production date.
- 4.4.4 Smoke condensate should be packaged in containers made of food grade materials which will safeguard the hygienic, nutritional, and organoleptic qualities of the product.

4.5 Slicing

- 4.5.1 The smoked fish products such as fillets, portions and steaks may be cold tempered (for example partially frozen to -5 °C to -12 °C) for a short time period to stabilize the fish flesh to facilitate mechanical slicing.
- 4.5.2 The slicing and related processes should be done on surfaces that are easy to clean and sanitize.
- 4.5.3 The flow of products should be maintained to avoid undue accumulation of products along the processing line.
- 4.5.4 The slicing devices should be well maintained for optimal slicing performance.

4.6 Hot smoking

- 4.6.1 Time and temperature of the smoking process should be monitored to achieve the desired colour, taste and texture, and to ensure control of microbiological and chemical contamination.
- 4.6.2 Use of continuous monitoring devices is recommended to ensure that time and temperature conditions are met. For instance, for complete coagulation of proteins, hot smoking temperature should reach 65 °C in the thermal centre of the product.
- 4.6.3 Products drying process should continue until the finished product is completely dried with the final moisture content to be 10 percent and below.
- 4.6.4 To achieve the requirements in 4.6.1, 4.6.2 and 4.6.3 the heated air and the smoke should be evenly distributed in the smoking chamber.

4.7 Cold smoking

- 4.7.1 The cold smoking process should ensure that the temperature of the products is kept below 30 °C to avoid coagulation of the proteins in the fish's
- 4.7.2 Time and temperature of the cold smoking process should be monitored to achieve the desired colour, taste and texture.

4.7.3 Use of continuous monitoring devices is recommended to ensure that desired time and temperature conditions are met and maintained.

4.7.4 Cold smoking should be carried out under microbiologically monitored hygienic conditions in a chamber and using equipment that is subjected to a detailed hygienic schedule.

4.7.5 The entire cold smoking process should be continued until moisture content and weight loss targets are reached.

4.8 Smoke flavours

4.8.1 Smoke flavours should not be used in an attempt to improve poor quality fish.

4.8.2 Smoke flavours should be applied according to the manufacturer's recommendations.

4.8.3 Smoke flavours should come from a reputable and reliable source which may need to be approved by the competent authority.

4.8.4 Smoke flavours that are diluted prior to application to the fish should be diluted with food grade materials and/or potable water conforming to EAS 12.

4.8.5 Controls as mentioned in 4.8.2 to 4.8.4 should be in place to ensure that smoke flavour mixtures meet pre-determined recommendations.

4.9 Cooling

4.9.1 When smoking is finished, the fish should be cooled rapidly and thoroughly to a temperature which minimizes microbiological growth in relation to the determined shelf-life.

4.9.2 Cooling should be done in a controlled environment to avoid cross contamination.

5 Packaging

5.1 Smoked fish, smoke-flavoured fish, smoke-dried fish and smoked fish products shall be packaged in food grade containers

5.2 In case of modified atmosphere packaging, the composition of the gas mixture should be checked regularly. Freezing or refrigeration, combined with salting and drying should be applied to hinder the growth of *Clostridium botulinum*.

6 Labelling

Labelling of smoked fish, smoke-flavoured fish, smoke-dried fish and smoked fish products should be done in accordance with EAS 876.

7 Storage

7.1 Storage temperature should be regularly monitored and recorded to meet shelf-life requirements.

7.2 Products should be stored at appropriate temperature conditions to avoid growth of potential pathogenic and spoilage microorganisms. For example, where modified atmospheric packaging is used, products should be kept in frozen conditions.

Draft for Comments Only