



لَا مَكْرَهَ وَلَا نَبْهَ فِي مَعْرِفَةِ مَا فِي بَيْتِكَ
وَمِنْ مَعْرِفَةِ مَا فِي بَيْتِكَ

National Standard for Fish Treated with Carbon monoxide

مُعَيَّنَةٌ: MFDA-FCD STAN 03-2017 (Rev. 2 - 2021)

مُعَيَّنَةٌ: سَنَةِ ٢٠٢١

مُعَيَّنَةٌ: سَنَةِ ٢٠٢١
مُعَيَّنَةٌ: سَنَةِ ٢٠٢١
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1. ገጽ 1 ላይ "የካርቦን ሞኖኦክሳይድ ለጥቅም የተጠቀሱ ስጦታዎችን ለመቆጣጠር የተዘጋጀው ስርዓት"፣
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 - GRAS ስርዓት (GRN)፡ 188፣ 22 ንጥረ ነገሮች 2005
 - GRAS ስርዓት (GRN)፡ 167፣ 1 ንጥረ ነገሮች 2005
 - GRAS ስርዓት (GRN)፡ 143፣ 6 ንጥረ ነገሮች 2004
 - GRAS ስርዓት (GRN)፡ 83፣ 29 ንጥረ ነገሮች 2001
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NATIONAL STANDARD FOR FISH TREATED WITH CARBON MONOXIDE

MFDA-FCD STAN 03-2017 (Rev. 2 – 2021)

1 SCOPE

This standard applies to Carbon monoxide (CO) or filtered smoke (FS) treated fresh-chilled and fresh-frozen fish of *scombridae* family intended for human consumption or further processing.

2 DEFINITION

Fresh-chilled fish: Fish or fishery products that have received no preserving treatment other than chilling.

Fresh-frozen-fish: Fish that have been subjected to a freezing process sufficient to reduce the temperature of the whole product to a level low enough to preserve the inherent quality of the fish, and maintained at this low temperature.

Carbon monoxide (CO) treated fish: Fish that are treated with CO gas by injecting and/or flashed in order to retain its 'fresh' red color for a longer period of time or to convert the color to a desirable red color.

Filtered smoke: The distillate collected from the generated smoke.

Filtered smoke (FS) treated fish: Fish that are treated with filtered smoke by injecting and/or flashed in order to retain its 'fresh' red color for a longer period of time or to convert the color to a desirable red color.

Physical boundary: The physical separation of two establishments with defined walls at every stage including entrance, raw material receiving, storage etc.

3 RAW MATERIAL SPECIFICATIONS

3.1 The product shall be prepared from sound tuna that meets the organoleptic criteria prepared by the processor and approved by MFDA.

3.2 The CO or FS to treat fish shall be approved by MFDA.

4 FINAL PRODUCT SPECIFICATIONS

- 4.1 Products treated must follow the requirements of the importing country for its specific levels. Where CO level is not declared by the importing country, CO level in final product must not exceed 5.5 mg per pound or 12 mg/kg.
- 4.2 Histamine level of the CO treated fish, From the 9 samples, 7 samples shall not exceed 100 ppm and 2 samples shall not exceed 200 ppm.
- 4.3 The final product chilled fish shall conform to the condition scores of 50 to 30 as described in Table 1.

Table 1. Point score system for grading fish based on condition

Condition scores
1. Very good (50) <ul style="list-style-type: none">a. No apparent defects/damage (no rips, tears, cuts and abrasions)b. Scales intact.c. Flesh at notch very firm, springs back quickly on pressing lightly with fingertips. No soft spots present on carcass surface.d. Marine or fresh or seaweed odour.
2. Good (40) <ul style="list-style-type: none">a. Slight defects/damage; there are a few minor rips, tears, cuts and abrasions.b. Some scales loss.c. Flesh at notch springs back slowly on pressing lightly with fingertips. One or two very small soft spots present on carcass surface.d. Neutral odour.
3. Medium (30) <ul style="list-style-type: none">a. Noticeable defects/damage; a maximum of two rips, tears, cuts, abrasions which could affect the meat yield.b. Small patches of scales lost.c. Flesh at notch less firm, does not spring back fully on pressing lightly with fingertips. Several small spots present on carcass surface.d. Sour odour.
4. Poor <ul style="list-style-type: none">a. More than two rips, tears, cuts or abrasions, which could affect the meat yield.b. Large patches of scales lost.c. Bleaching, red staining very apparent.d. Flesh at notch soft, does not spring back at all on pressing lightly with

<p>fingertips. Large soft areas on carcass surface.</p> <p>e. Stale odour.</p>
<p>5. Very poor</p> <p>a. Severe body damage, distortion.</p> <p>b. Severe scale loss.</p> <p>c. Severe bleaching, staining.</p> <p>d. Flesh at notch very soft, falling apart. Carcass surface breaking up.</p> <p>e. Meat has evidence of parasite or disease.</p> <p>f. Spoiled or putrid odour.</p>

4.4 The final product shall conform to the following microbiological quality requirements in Table 2 and heavy metal levels in Table 3.

Table 2. Microbiological quality requirements

Microorganism	n	c	m	M
Total viable count, cfu/g	5	2	10^5	10^7
<i>Escherichia coli</i> , cfu/g	5	0	0	-
<i>Staphylococcus aureus</i> (coagulase +), cfu/g	5	2	10^2	10^3
<i>Salmonella</i> spp. /25g	5	0	0	-
<i>Listeria monocytogenes</i>	5	0	0	-
<i>Vibrio parahaemolyticus</i> , cfu/g	5	2	10^1	10^2
<i>Vibrio cholera</i>	5	0	0	-
<i>Clostridium botulinum</i>	5	0	0	-
Visible parasites	5	0	0	-

Legend:

n – number of sample units selected from a lot of food to be examined

m – acceptable level of microorganism determined by a specific method; the values are generally based on levels that are achievable under GMP

M – level which when exceeded in one or more samples would cause the lot to be rejected as this indicates the potential health hazard or imminent spoilage

c – maximum allowable number of defective or marginally acceptable units

Table 3. Acceptable levels of heavy metals in fish

Heavy metal	Maximum level
Lead	0.3 ppm (0.3 mg/kg)
Cadmium	0.1 ppm (0.1 mg/kg)
Mercury	1.0 ppm (1 mg/kg)

5 PACKAGING AND LABELLING

5.1. The product shall be packaged in appropriate food grade materials. Packaging can be done individually or in bulk. Different species shall not be mixed in bulk packaging.

5.2. Labeling requirements shall comply with the “National Standard for Labelling Prepackaged Food” (Number: MFDA-FCD STAN 4-2014 (Rev. 1 – 2016)).

5.3 In addition to the National Standard for Labelling Prepackaged Food the following requirements are mandatory.

5.3.1. The label shall contain text stating if:

a) Treated with CO “This product is Carbon monoxide (CO) treated”

b) Treated with FS “This product is filtered smoke treated”

5.3.2. The font type, size, and degree of prominence of the statements at 5.3.1 (a) and (b) shall be the same as the name of the product.

5.3.3 The statements at 5.3.1 (a) and (b) shall appear on the label in conjunction with, or close proximity to the name of the food.

5.4 The product name and description shall not contain the word ‘fresh’.

6 ESTABLISHMENTS FOR PROCESSING CO AND FS TREATED FISH

6.1 Establishment shall comply with the “General Regulation for Food Establishments and Services” (2007/182/ FS 1).

6.2 HACCP based system shall be implemented in the establishment.

6.3 An establishment used for processing CO and FS treated fish must not be used to process and/or export untreated fish in either fresh or frozen form.

6.4 Non-CO and non-FS establishment shall be separated from CO treated and FS treated establishment by physical boundary. Nothing shall be shared with the exception of utilities such as electricity and water.

6.5 Establishment shall comply with international occupational health and safety standards.

7 INSPECTION OF ESTABLISHMENTS

7.1 Food business operators are obliged to undergo any inspection carried out in accordance with this standard and to assist staff of MFDA in accomplishing of their tasks.

7.2 Audits of production facilities for CO treatment shall be performed not less than twice per year.

7.3 The product samples shall be collected for analysis during the inspections.

8 ANALYSIS OF PRODUCTS

8.1 In addition to official samples; the following laboratory testing shall be carried out by the processor or producer

8.1.1 Samples representing the export shipments shall be analyzed for CO levels once in every 6 months.

8.1.2 Histamine analysis shall be performed on each shipment as described in 4.2.

8.1.3 Microbiological analysis shall be performed periodically as laid down by MFDA.

8.2 When requested by the Competent Authority the exporter shall make arrangements for Inspectors to collect samples at the border.

9 PRODUCT CERTIFICATION FOR EXPORT CONSIGNMENTS

9.1 Following documents shall be sent to Competent Authority to declare the CO-treated products in order to obtain Food Stuff certificate for CO treated fish.

- a) Request for Food Stuff Certificate
- b) CO treatment declaration by the exporter
- c) Packing List
- d) Histamine analysis report

10 PRODUCT RECALL

- 10.1 The exporter shall ensure effective procedures are in place to deal with any food safety hazard and to enable the complete, rapid recall of any implicated lot of the export product from the border or on market.
- 10.2 Recalled product(s) shall be held under supervision of concerned official authorities until they are disposed.