

CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of
the United Nations



World Health
Organization

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STANDARD FOR STURGEON CAVIAR

CXS 291-2010

Adopted in 2010. Amended in 2013, 2018 and 2024.

2024 Amendments

Following decisions taken at the Forty-seventh Session of the Codex Alimentarius Commission in November 2024, amendments were made in Section 7.4 Labelling of non-retail containers by adding a text with a reference to the *General standard for the labelling of non-retail containers of foods* (CXS 346-2021); and Section 8 Sampling, examination and analysis was amended by replacing methods of analysis and numeric performance criteria with a reference to the *Recommended methods of analysis and sampling* (CXS 234-1999).

1. SCOPE

This standard applies to granular sturgeon caviar of the fish of the Acipenseridae family.

2. DESCRIPTION

2.1 Definitions

The following definitions are used in this standard:

Fish eggs: non-ovulated eggs separated from the connective tissue of ovaries. Ovulated eggs may be used from aquacultured sturgeons.

Caviar: the product made from fish eggs of the Acipenseridae family by treating with food-grade salt.

2.2 Product definition

The product is prepared from fish eggs of sturgeon fish belonging to the Acipenseridae family (four genera *Acipenser*, *Huso*, *Pseudoscaphirhynchus* and *Scaphirhynchus* and hybrid species of these genera). The eggs are of about one size and evenly and characteristically coloured according to the species used. Colour can vary from light grey to black or from light yellow to yellowish grey. Brownish and greenish shades are permissible. The product is made with addition of salt and is intended for direct human consumption. The salt content of the product is equal or above 3 g/100 g and below or equal to 5 g/100 g in the end product.

2.3 Process definition

The product, after suitable preliminary preparation of the caviar, shall be subject to treatment or conditions sufficient to prevent the growth of spore and non-spore forming pathogenic microorganisms and shall comply with the conditions laid down hereafter. Ovulated eggs are harvested after hormonal induction of ovulation of the female. The eggs are appropriately treated to remove adhesive layer and to harden the shell. If hormones are used to produce ovulated eggs, they should be approved for use by the competent authority having jurisdiction.

The product shall be prepared by salting fish eggs with food-grade salt. During packaging, storage and retail, the product temperature is between +2 °C and +4 °C, whereas for wholesale business, including storage and transportation, the temperatures are between 0 °C and -4 °C. Freezing as well as frozen storage of caviar is not permitted unless the deterioration of quality is avoided.

The product shall be packed in:

- metal tins coated inside with stable food lacquer or enamel;
- glass jars; or
- other suitable food-grade containers.

Re-packaging of the product from larger to smaller containers under controlled conditions which maintain the quality and safety of the product shall be permitted. No mixing of caviar from different sturgeon species or lots shall be permitted.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Raw material

Caviar shall be prepared from fish eggs extracted from sound and wholesome sturgeons of biological species of the genera described in Section 2.2, which are of a quality fit to be sold fresh for human consumption.

3.2 Salt

Salt shall be of food-grade quality and conform to all applicable Codex standards.

3.3 Final product

The product shall meet the requirements of the present standard, when a lot examined in accordance with the requirements described in Section 10 complies with the provisions set out in Section 9.

The product shall be examined by the methods given in the *Recommended methods of analysis and sampling* (CXS 234-1999).¹

4. FOOD ADDITIVES

Acidity regulators, antioxidants and preservatives listed in Table 3 of the *General standard for food additives* (CXS 192-1995),² are acceptable for use in foods conforming to this standard.

5. CONTAMINANTS

The products covered by this standard shall comply with the maximum levels of the *General standard for contaminants and toxins in food and feed* (CXS 193-1995)³ and the maximum residue limits (MRL) for pesticides and veterinary drugs established by the Codex Alimentarius Commission (CAC). In addition, the following specific provisions apply:

For caviar obtained from ovulated eggs, the treatment of the fish (e.g. with hormones) and the subsequent level of residues in the final product shall be in conformity with the relevant provisions in subsection 6.3.2 Veterinary Drugs of the *Code of practice for fish and fishery products* (CXC 52-2003)⁴ (Section 6 – Aquaculture) in particular regarding the compliance with the MRL and the withdrawal time.

6. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *General principles of food hygiene* (CXC 1-1969)⁵ and other relevant Codex codes of practice.

The products should comply with any microbiological criteria established in accordance with the *Principles and guidelines for the establishment and application of microbiological criteria related to foods* (CXG 21-1997).⁶

The product shall not contain any other substance in amounts which may present a hazard to health in accordance with standards established by the CAC.

The final product shall be free from any foreign material that poses a threat to human health.

7. LABELLING

In addition to the provisions of the *Codex general standard for the labelling of pre-packaged foods* (CXS 1-1985)⁷ the following specific provisions apply:

7.1 Name of the food

For the Acipenseridae family, the name of the food shall be “caviar” or “caviar” completed with the usual name (Beluga for *Huso huso*, Ossetra for *Acipenser gueldenstaedtii* and *Acipenser persicus*, Sevruga for *Acipenserstellatus*), in accordance with the law and custom of the country in which the product is sold, in a manner not to mislead the consumer.

For sturgeons having no common names, the name may be supplemented with the identification code or the scientific name of the species in accordance with Annex A.

For hybrids the common name shall be supplemented with the word hybrid, and the parent sturgeon species may be shown according to Annex A.

For caviar obtained from ovulated eggs, the product name shall be “caviar from ovulated eggs”. The labelling shall be written in such a way as to avoid any risk of misleading consumers on the nature of the product.

7.2 Storage instructions

The labelling shall include terms to indicate that the product shall be stored under appropriate time/temperature conditions.

7.3 Re-packaging

In case of re-packaging of the product the facility registration code shall be identified.

7.4 Labelling of non-retail containers

Each primary container shall be labelled with the number markings of the lot and the species.

The labelling of non-retail containers should be in accordance with the *General standard for the labelling of non-retail containers of foods* (CXS 346-2021).⁸

8. SAMPLING, EXAMINATION AND ANALYSIS

8.1 Sampling

- Sampling of lots for examination of the product shall be in accordance with the *General guidelines on sampling* (CXG 50-2004).⁹ A sample unit is the primary container.
- Sampling of lots for examination of net weight shall be carried out in accordance with an appropriate sampling plan meeting the criteria established by the CAC.
- Sampling of lots for pathogenic microorganisms and parasites shall be in accordance with the *Principles and guidelines for the establishment and application of microbiological criteria related to foods*.

8.2 Examination

8.2.1 Sensory examination

Samples taken for sensory and physical/chemical examination shall be assessed by person trained in such examination and in accordance with the *Guidelines for the sensory evaluation of fish and shellfish in laboratories* (CXG 31-1999).¹⁰

8.3 Analysis

For checking the compliance with this standard, the methods of analysis and sampling contained in the *Recommended methods of analysis and sampling* (CXS 234-1999)¹ relevant to the provisions in this standard, shall be used.

9. DEFINITION OF DEFECTS

The sample unit shall be considered as defective when it exhibits any of the properties defined in Section 9.1–Section 9.4.

9.1 Foreign matter

The presence in the sample unit of any matter which has not been derived from sturgeon eggs, does not pose a threat to human health, and is readily recognized without magnification; or is present at a level determined by any method including magnification, that indicates non-compliance with good manufacturing practices and sanitation practices.

9.2 Odour and flavour

The product affected by persistent and distinct objectionable odour and/or flavour indicative of decomposition, oxidation, or taste of feed (in fish reared in aquaculture), or contamination by foreign substances (such as fuel oil).

9.3 Consistency and condition

- The presence of hard cover of caviar grains that is not easily chewable or tenuous.
- The breaking up of the outer membranes when attempting to separate the grains.
- The presence of broken eggs or fluid.

9.4 Objectionable matter

The presence of remnants of membranes and/or secreted fat in finished caviar.

10. LOT ACCEPTANCE

A lot shall be considered as meeting the requirements of this standard when:

- The total number of defectives as classified according to Section 9 does not exceed the acceptable number of the appropriate sampling plan given in the General guidelines on sampling (CXG 50-2004).⁹
- The average net weight of all sample units is not less than the declared weight, provided no individual container is less than 95 percent of the declared weight.
- The food additives, contaminants, hygiene and labelling requirements of Sections 4, 5, 6, and 7 are met.

ANNEX A

Table 1. Identification codes of sturgeon species

Denomination of sturgeon fishes – Scientific names	Code
<i>Huso huso</i>	HUS
<i>Huso dauricus</i>	DAU
<i>Acipenser naccari</i>	NAC
<i>Acipenser transmontanus</i>	TRA
<i>Acipenser schrenkii</i>	SCH
<i>Acipenser sturio</i>	STU
<i>Acipenser baerii baikalensis</i>	BAI
<i>Acipenser sinensis</i>	SIN
<i>Acipenser dabryanus</i>	DAB
<i>Acipenser persicus</i>	PER
<i>Acipenser brevirostrum</i>	BVI
<i>Acipenser fulvescens</i>	FUL
<i>Acipenser oxyrinchus</i>	OXY
<i>Acipenser oxyrinchus desotoi</i>	DES
<i>Acipenser gueldenstaedtii</i>	GUE
<i>Acipenser medirostris</i>	MED
<i>Acipenser baerii</i>	BAE
<i>Acipenser micadoi</i>	MIK
<i>Acipenserstellatus</i>	STE
<i>Acipenser ruthenus</i>	RUT
<i>Acipenser nudiventris</i>	NUD
<i>Pseudoscaphirhynchus fedtschenkoi</i>	FED
<i>Pseudoscaphirhynchus hermanni</i>	HER
<i>Pseudoscaphirhynchus kaufmanni</i>	KAU
<i>Scaphirhynchus platorhynchus</i>	PLA
<i>Scaphirhynchus albus suttkusi</i>	ALB
<i>Scaphirhynchus suttkusi</i>	SUS
<i>Hybrids: female species code x male species code</i>	YYY x XXX

NOTES

¹ FAO and WHO. 1999. *Recommended methods of analysis and sampling*. Codex Alimentarius Standard, No. CXS 234-1999. Codex Alimentarius Commission. Rome.

² FAO and WHO. 1995. *General standard for food additives*. Codex Alimentarius Standard, No. CXS 192-1995. Codex Alimentarius Commission. Rome.

³ FAO and WHO. 1995. *General standard for contaminants and toxins in food and feed*. Codex Alimentarius Standard, No. CXS 193-1995. Codex Alimentarius Commission. Rome.

⁴ FAO and WHO. 2003. *Code of practice for fish and fishery products*. Codex Alimentarius Code of Practice, No. CXC 52-2003. Codex Alimentarius Commission. Rome.

⁵ FAO and WHO. 1969. *General principles of food hygiene*. Codex Alimentarius Code of Practice, No. CXC 1-1969. Codex Alimentarius Commission. Rome.

⁶ FAO and WHO. 1997. *Principles and guidelines for the establishment and application of microbiological criteria for foods*. Codex Alimentarius Guideline, No. CXG 21-1997. Codex Alimentarius Commission. Rome.

⁷ FAO and WHO. 1985. *General standard for the labelling of pre-packaged foods*. Codex Alimentarius Standard, No. CXS 1-1985. Codex Alimentarius Commission. Rome.

⁸ FAO and WHO. 2021. *General standard for the labelling of non-retail containers of foods*. Codex Alimentarius Standard, No. CXS 346-2021. Codex Alimentarius Commission. Rome.

⁹ FAO and WHO. 2004. *General guidelines on sampling*. Codex Alimentarius Guideline, No. CXG 50-2004. Codex Alimentarius Commission. Rome.

¹⁰ FAO and WHO. 1999. *Guidelines for the sensory evaluation of fish and shellfish in laboratories*. Codex Alimentarius Guideline, No. CXG 31-1999. Codex Alimentarius Commission. Rome.