

STANDARDIZATION ORGANIZATION FOR G.C.C (GSO)



GSO 514 / 1994

**الإشتراطات الفنية والصحية العامة
لتداول الأسماك الطازجة (في البحر)
GENERAL HYGIENIC AND TECHNICAL
REQUIREMENTS FOR HANDLING
FRESH FISH (AT SEA)**

ICS:65.150

**GENERAL HYGIENIC AND TECHNICAL
REQUIREMENTS FOR HANDLING
FRESH FISH (AT SEA)**

Date of GSMO Board of Directors Approval : 1415(H)-06-13 (1994-11-16)
Issuing Status : Technical Regulation

**GENERAL HYGIENIC AND TECHNICAL
REQUIREMENTS FOR HANDLING
FRESH FISH (AT SEA)**

1. SCOPE

This GSO standard applies to fresh fish, chilled but not frozen, intended for human consumption. It contains the technological guidelines and the most essential requirements of hygiene for the handling and processing of fresh fish at sea. It does not include fish which have received preserving materials.

2. DEFINITIONS

- 2.1 Boxed storage: is the storage of fish in boxes or containers on board.
- 2.2 Bulk storage: is the mess storage of fish in boxes on board.
- 2.3 Chilling: is the process of cooling fish to a temperature approaching that of melting ice which is about 0°C.
- 2.4 Chilled sea water. is clean sea water which temperature is 0°C or slightly below which is cooled by addition of ice (prepared from potable water). Its salt content is normally about 3 percent.
- 2.5 Clean sea water: is sea water which is free from contaminants and objectionable substances.
- 2.6 Cleaning: is the removal of dirt or objectionable matter from all surfaces related to fish.
- 2.7 Contamination: is the direct or indirect transmission of contaminants or objectionable substances to the fish.
- 2.8 Disinfection: means the application of hygienically satisfactory chemical or physical agents and processes to clean surfaces with the intention of eliminating microorganism.
- 2.9 Fresh fish: are freshly caught fish which have been preserved only by chilling and have received no preserving treatment. They include vertebrates, invertebrates and shellfish (e.g. shrimps, lobsters, croyfish), and cephalopads (e.g. sapia and others).
- 2.10 Gutted fish: are fish which the viscera (guts) have been removed.
- 2.11 Keeping time: refers to the length of time that the caught fish will remain wholesome and acceptable as human food.
- 2.12 Pounds or pins: are areas in the fish hold and on deck which are divided off by stanchions, portable or fixed board strectures for the storage of fish.

- 2.13 Refrigerated brine is a solution of food grade salt (sodium chloride) dissolved in potable water of about the same salinity as sea water which is cooled by the addition of ice.
- 2.14 Shelf storage is the storage of fish on board in single layers on shelves.
- 2.15 Suitable corrosion resistant materials are impervious materials which are free from pits, crevices and scales, non-toxic and unaffected by sea water, ice, fish slime on any other corrosive substances. Their surfaces must be smooth and they must be capable of withstanding exposure to repeated cleaning and use of detergents.

3. RAW MATERIALS REQUIREMENTS

3.1 General requirements

- 3.1.1 Fish shall not be exposed to direct sunlight or to the drying effect of winds or any other harmful effects of the elements.
- 3.1.2 Fish should be carefully cleaned and cooled down to the temperature of melting ice 0°C, as quickly as possible. Any careless treatment or delay in cooling the fish will have a harmful effect on the shelf life of the fish.
- 3.1.3 Fish intended for marketing as fresh fish should be of the highest quality. This can be verified by the surveillance of the following:

a. Quality of fish when caught:

It can be determined by the physical condition of the fish and includes appearance, percentage of damage to skin, presence of any diseases. This kind of fish shall be discarded immediately being unfit for human consumption.

b. Quality of fish or delivery to the buyer or the processor:

It can be determined by employing appropriate and hygienic methods and techniques in fishing, handling and storage on board of fishing vessels.

4. HANDLING OF FRESH FISH AT SEA

4.1 Fishing vessel facilities and operating requirements

4.1.1 General requirements:

The fishing vessel shall be designed for rapid and effective handling of fish, easy of cleaning and disinfection. It shall be of such material and construction as not to cause any damage or contamination of the catch.

4.1.2 Fishing vessel hygienic requirements

- 4.1.2.1 Deck pound, pen stanchions and dividing boards shall be constructed of suitable corrosion - resistant material. They should be adequate in number and height to prevent movement of the fish due to the vessel's motion.

- 4.1.2.2 Deck pound or pen dividing boards should be fitted to allow for easy removal and should have drain notches.
- 4.1.2.3 Fish holds or tanks should be adequately insulated with a suitable material to reduce the amount of heat and ice metlage entering the fish hold. Any pipes or conducts passing through the hold should, if possible, be covered or painted with adequate insulation.
- 4.1.2.4 All fish hold or tank linings should be complete, water - tight. The insulation layer should be protected by lining made of nontoxic corrosion resistant metal sheets. It shall not have any effect on the health.
- 4.1.2.5 Wooden holding tanks or holds should be coated with a suitable impervious and non-toxic material.
- 4.1.2.6 Wooden boards of suitable corrosion resistant material or impregnated and painted wood should be used for making shelves and vertical divisions in the fishroom.
- 4.1.2.7 When using shelling boards, they should be designed to allow adequate drainage.
- 4.1.2.8 The height of fish on shelves shall not exceed 1 m (3 feet).
- 4.1.2.9 There should always be ample drainage space between the lowest shelves and the floor of the fish hold. This space should be open to a central drain, discharging directly into one or more sumps. Bilge pump connections to these sumps should be fitted with screen filters.
- 4.1.2.10 Where boxing is carried out, the stanchions or dividing structure should be designed to accommodate boxes of fish without leaving large air gaps.
- 4.1.2.11 If cooling grids are fitted in the fish hold, they should be installed and operated so as the temperature does not fall below 0°C.
- 4.1.2.12 Storing of fish in divided holds is recommended when refrigeration system mentioned in 4.1.2.1 1 is not used.
- 4.1.2.13 Holds that are not divided into pounds or pens should have an adequate drainage system.
- 4.1.2.14 There should be no sharp corners or projections in the hold or tank as these will make cleaning difficult and may damage the fish.
- 4.1.2.1 5 Refrigerated clean sea water or refrigerated brine may also be used for preserving some fisheries.
- 4.1.2.16 Refrigerated sea water or refrigerated brine systems should be properly designed to give adequate cooling capacity to maintain the temperature of fish – 1°C.
- 4.1.2.17 In all vessels using refrigerated sea water for chilling or refrigerated brine system for freezing fish, tanks, heat exchangers, pumps and associated piping shall be made of, or coated with suitable corrosion - resistant material. They shall be designed so that they can easily be cleared and disinfected.

- 4.1.2.18 Where clean sea water or brine and ice mixtures are used for cooling and temporary storage of the catch, there should be adequate circulation of the liquid (ice).
- 4.1.2.19 Refrigerated sea water or refrigerated brine tanks shall be insulated to minimize heat leakage from, their surroundings.
- 4.1.3 Hygienic facilities
 - 4.1.3.1 Areas of the deck where fish are unloaded and handled, or stored should be used exclusively for these purposes. They should not be used for storing fuel and cleaning materials or any objectionable matters. The floor of the vessel surface designed for this purposes shall be manufactured of non-toxic or harmful material and readily capable of being maintained and should be kept clean.
 - 4.1.3.2 An ample supply of potable water or clean sea water under adequate pressure should be available at sufficient points throughout the fishing vessel. On large vessels engaged in fish processing, a supply of hot water at a minimum temperature of 82°C should also be available.
 - 4.1.3.3 A system for injecting chlorine into the lines of sea water which is used in the processing of fish or for the clean-up of the vessel should be provided where practicable.
 - 4.1.3.4 Deck hoses should be supplied with clean sea water, at adequate pressure, by a pump used only for clean sea water.
 - 4.1.3.5 Ice used in every fishery should be made from potable water or clean sea water and should not be contaminated when manufactured, handled or stored.
 - 4.1.3.6 Plumbing and waste disposal lines should be so constructed as not to contaminate the fish.
 - 4.1.3.7 Containers which contain the bait shall be separated from those used to hold the fish.
 - 4.1.3.8 On large fishing vessels, engaged in fishing as well as fish processing, suitable washing facilities should be provided.
 - 4.1.3.9 The fishing vessel should be equipped with brushes, scrapers, water hoses, spray nozzles and others. Brushes and scrapers should be disinfected after each use.
 - 4.1.3.10 If poisonous or harmful materials including powder and liquid detergents and Pesticides are stored on board the vessel, they should be kept in a separate compartment, reserved and marked specifically for this purpose.
- 4.1.4 Equipment and utensils
 - 4.1.4.1 All fish handling, conveying and storage equipment, used on board fishing vessels, shall be designed for the rapid and efficient handling of fish, be suitable for easy and thorough cleaning and shall be constructed as not to cause contamination of the catch.

- 4.1.4.2 Fish washing and conveying equipment's shall be constructed of suitable corrosion - resistant material and shall be easy to dismantle for cleaning purposes and be fitted with chutes or similar means of conveying fish into the hold. Chutes shall be of sufficient length and fitted in such a manner that fish do not have to drop more than 1 meter into the hold.
- 4.1.4.3 All tubes, tanks, barrels and other containers used for handling and conveying fish shall be of corrosion - resistant material and easy to clean.
- 4.1.5 Hygienic operating requirements
 - 4.1.5.1 Before any fish comes aboard, and between each haul of the gear, decks, boards, stanchions and all other deck equipment which will come in contact with fish shall be hosed down with clean sea water and brushed to remove all visible dirt, slime and blood.
 - 4.1.5.2 All tanks, barrels and other equipment used in handling, gutting, washing and conveying operations shall be thoroughly cleaned, disinfected and rinsed after each cycle of operations.
 - 4.1.5.3 During fishing trips the fish hold pilge sump shall be drained regularly. The sump shall be accessible at all times.
 - 4.1.5.4 Dead fish and organic material left in the nets shall be freed after each haul. All gear shall be thoroughly cleaned when fishing has ceased.
 - 4.1.5.5 Sea water which has been used for cooling engines, condensers or similar equipment shall not be used for washing fish, deck, hold or any equipment which might come in contact with fish, only potable water or clean sea water shall be used.
 - 4.1.5.6 After the catch is unloaded, the deck and all deck equipment including nets and fish hold shall be hosed down, brushed, thoroughly cleaned with cleaned sea water and chlorine.
 - 4.1.5.7 Where refrigerated sea water is used for the preservation of fish, only clean sea water shall be used and shall be changed as often as possible to prevent the accumulation of contaminating materials.
 - 4.1.5.8 Surfaces prepared for cutting fish shall be provided with channels or chutes which have continuous supply of clean sea water to carry the guts over a suitable collecting container.
 - 4.1.5.9 Adequate precautions shall be taken to ensure that human and other wastes from the fishing vessels are disposed of in such a manner as not to constitute a hygienic hazard.
 - 4.1.5.10 Effective measures shall be taken to protect the fishing vessels against insects, rodents, birds or other vermin.
 - 4.1.5.11 Dogs, cats and other animals shall be excluded from areas of the vessel and where fish is received handled, processed and stored.

- 4.1.5.12 Stores and containers of food supplied for the ship's crew shall be separated from the bins where fish are kept.
- 4.1.6 Handling the catch on board
 - 4.1.6.1 Duration of the fishing trip for a fishing vessel shall be determined by the facilities available on the vessels for handling and keeping the catch well chilled, distance from the processing plant and the local environmental conditions.
 - 4.1.6.2 Handling the catch shall begin as soon as it comes on board.
 - 4.1.6.3 Where it is required to keep species unsuitable for human food, these shall be always stored from the edible catch and kept separate at all times.
 - 4.1.6.4 Fish shall not be trampled or stood upon and shall not be piled deeply on deck.
 - 4.1.6.5 All fish on deck shall be protected from sun and drying effects of wind.
 - 4.1.6.6 Line caught fish shall, wherever practicable, be stunned as soon as they are taken on board the vessel.
 - 4.1.6.7 When fish are to be bled, this shall be done immediately after the fish are landed on deck.
 - 4.1.6.8 Gutting shall commence as soon as the catch comes on deck, wherever practicable.
 - 4.1.6.9 Where rapid gutting is not practicable whole fish shall be washed and chilled as soon as it comes on deck.
 - 4.1.6.10 It is usually impracticable to gut very small fish. These shall therefore be placed in chilled storage quickly.
 - 4.1.6.11 Gutting (in some kind of fish) shall be complete and carried out with care so as not to develop fish spoilage.
 - 4.1.6.12 Fish guts shall not be allowed to contaminate other fish on deck.
 - 4.1.6.13 Separate and adequate storage facilities shall be provided for the fish roe, milt and livers if these are saved for later utilization.
 - 4.1.6.14 Immediately after gutting, fish shall be washed with clean sea water or potable water.
 - 4.1.6.15 The fish shall be thoroughly chilled after washing without delay.
 - 4.1.6.16 Deck hatches shall not be left open longer than necessary to prevent undesirable heat leak (iced leak) into the hold. Fish shall be allowed to slide down chutes into the hold or be lowered in suitable containers.
 - 4.1.6.17 For long fishing trips fish shall be chilled rapidly in melting ice and shall be stored so that the temperature does not rise. For short term trips, however refrigerated sea water or refrigerated brine may be used.

- 4.1.6.18 Fish in ice shall be stowed in shallow layers. Fish shall be surrounded by adequate quantities of ice to prevent contact with all surfaces in the fish hold and the ice shall be divided to give close contact with the fish where boxed stowage is used, the fish shall be properly iced and the boxes not overfilled.
- 4.1.6.19 Fish shall not be packed in refrigerated sea water or refrigerated brine to a density of more than 800 kg per cubic meter.
- 4.1.6.20 Where sea water or brine stowage tanks are cooled by the additional of ice, salt concentration shall be maintained at about 3 percent.
- 4.1.6.21 Stowage plan and packing fish from different day's catches shall never be stored mixed together on any vessel fishing for more than a day or two.
- 4.1.7 Unloading the catch
- 4.1.7.1 It shall be carried out in a careful manner and without delay to protect fish from spoilage.
- 4.1.7.2 Mechanical unloading equipment shall be used where possible.
- 4.1.7.3 At the conclusion of each fishing trip, all unused ice shall be discarded before cleaning begins.
- 4.1.7.4 It shall be avoided mixing of different day's catches during unloading.
- 4.1.7.5 Bulk or shelf stowed catch shall be unloaded into clean containers and immediately placed in a suitable covered area and maintained in a chilled condition.
- 4.1.7.6 Care shall be taken that fish are not damaged or contaminated during unloading, storing, weighing and transportation.
- 4.1.8 Control programme
- It is desirable that a sanitary control programme shall be developed by the commander of the vessel who will assign the nature of work for the whole crew. He should be well - trained to accomplish the hygienic requirements for handling fish. All the crew shall have sanitary certificate.