भारतीय मानक

Indian Standard

IS 10449 : 2024

(*Amalgamating IS 10450 : 1983*)

मीठे पानी में मत्स्यपालन के लिए मछली बीज और सजावटी मछली — परिवहन कोड

(पहला पुनरीक्षण)

Freshwater Fish Seed and Ornamental Fish — Code for Transport

(First Revision)

ICS 67.120.30

भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

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Fish, Fisheries and Aquaculture Sectional Committee, FAD 12

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Fish, Fisheries and Aquaculture Sectional Committee had been approved by the Food and Agriculture Divisional Council.

Transport of fish seeds has become an important activity in the development of aquaculture and culture-based capture fisheries of inland waters. Since the stocking of ponds, tanks and inland waters with seeds is mostly seasonal, the timely implementation and success of national programme for extension and intensification of aquaculture would largely depend upon the speed and effectiveness with which the fish seeds are transported from the limited centres of collection or production to the far-flung water areas spread over the entire country. Live transport is also a major activity in ornamental fish trade. Transport of live fish and fish seed has been practised in India since long time in open containers, with renewal of water at intervals. These containers are optionally provided with facility to increase the dissolved oxygen level through disturbance of the water column with burping, paddling or on-board pumping and optional renewal of water at intervals. While such traditional practices are still in vogue for live transport of juveniles and adult freshwater fish (brood fish), it has been replaced for fish seed and ornamental fishes with recent advancements in thermal insulating materials and techniques of packing with oxygen in polyethylene bags. Minimizing the implications associated with live transportation of fishes is having paramount importance during transport. It begins with careful planning and preparation before the actual transport takes place.

The Indian Standards, IS 10449 on ‘Code for transport of fish seeds for inland pisciculture purposes’ and IS 10450 ‘Code of transport of fresh water aquarium fish’ were published in 1983. This revision of IS 10449 is being brought out to consolidate the practices for transport of fish seeds for inland aquaculture and practices for transport of freshwater aquarium fish in one standard as the requirements and conditions stipulated have high degree of similarity. The intended group of users will also be common and amalgamated standard will serve better for reference and usage. In this revision, packing container dimensions and packing density have been modified in line with current technological practices. With publication of this standard, IS 10450 would be withdrawn.

The composition of the Committee responsible for revision of the standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

FRESHWATER FISH SEED AND ORNAMENTAL FISH — CODE FOR TRANSPORT

(First Revision)

1 SCOPE

This code prescribes the conditions for transport of fish seeds for inland aquaculture purposes and transport of freshwater ornamental fish species for breeding, farming and fish keeping purposes.

NOTE — This code excludes seeds of freshwater shellfish.

2 REFERENCES

There are no references in this standard.

3 DEFINITION

3.1 For the purpose of this standard the following definitions shall apply.

3.1.1 *Fish Seeds* — Fish seeds (fertilized eggs, spawn, fry and fingerlings) of warm and cold freshwater fish meant for development of inland aquaculture.

3.1.2 *Ornamental Fish* — Fishes, generally of smaller size, reared or marketed for their aesthetic (attractive and colourful) characteristics rather than for consumption.

3.1.3 *Aquarium* — A glass container, at least with one transparent side, to keep ornamental fish.

4 GENERAL REQUIREMENTS

4.1 The fish seeds and ornamental fish shall be stored wherein they shall not be subjected to any desiccation, extreme high and low temperature, poor water quality, salinity or any other type of stressors.

4.2 Only healthy, disease resistant and conditioned fish seeds/ornamental fishes shall be selected for packing and transportation.

4.3 As far as practicable, fish seed/ornamental fish of the same species and size shall be packed for transport. However, fish seeds of certain compatible species, of uniform size which are non-predaceous in habits shall be packed in the same container. The number of fish to be packed in each container shall depend on species/variety/strain, its size and the transportation time.

4.4 Fish seeds and ornamental fish, as far as possible, shall be transported either by air or by the trains. Road transport shall also be used for distance that is covered within 24 h, while cars, pickups shall be used for short distance (upto 200 km) fish seed transport.

4.5 The polyethylene bags holding fish seeds shall be filled to minimum 50 percent of its capacity with oxygen, so as to provide a pressure of 1.0 kg per cm^2. The polyethylene bags holding live ornamental fish shall be filled up to 50 percent of its capacity with oxygen under a pressure of 0.5 kg per cm^2.

4.6 Double bagging shall be preferred for added protection against puncture, leakage or bursting during transportation. While the bags shall be tied tightly to prevent escape of oxygen, it shall not be fully and tightly inflated with oxygen for transit on sunny days.

5 PACKING REQUIREMENTS

5.1 Fertilized eggs of trout

Fertilized eggs of brown and rainbow trouts at eyed-stage shall be transported in insulated cabinet of dimensions 50 cm × 25 cm × 40 cm. On the top of the cabinet, 20 cm high cupboard with galvanized wire-netting base shall be provided to pack moss with snow or ice. Under the cupboard two trays shall be arranged, one above the other with perforated zinc sheet base for packing moss, and to hold the water from the melting snow or ice lying above. Below the above two trays, 42 egg trays shall be placed in two rows of 21 trays each. Each egg tray shall have a muslin cloth base to keep the eggs moist. Each egg tray shall hold 1 000 eyed eggs in a single layer.

5.2 Spawn, Fry and Fingerlings of Cultivable Fish Species and Ornamental Fish Species

5.2.1 Conditioning of spawn/fry/fingerling of cultivable fishes and ornamental fishes shall be done prior to packing to reduce transport mortality: supplementary feeding should be withdrawn 12 h to 24 h prior to seed packing.

5.2.2 Fish seed shall be conditioned in a conditioning happa (1 mm square mesh cloth) preferably fitted in the original pond or in concrete tank, whenever possible with water from the original pond, in a crowded condition to get rid of the faecal matter prior to packing. The conditioning should be done for 6 h to 8 h depending on size of seed, time and distance of transport. Water sprinkling shall be

used and no feed shall be provided during conditioning.

5.2.3 Only tested leak proof polyethylene bags having not less than 75 micron thickness shall be used to pack spawn, fry and fingerlings of fish and ornamental fish species.

5.2.4 The dimensions of polyethylene bags for fish seed transport shall be optionally 60 cm to 80 cm in length and 45 cm to 55 cm in width. The size of bags shall be smaller for ornamental fish transport ranging 55 cm to 60 cm in length and 20 cm to 40 cm in width.

5.2.5 The fish seed of Indian and exotic carps and other fish shall be packed in accordance with size and number as given in Table 1, to avoid mortality of more than 5 percent.

5.2.6 For long distance transport, the polyethylene bags holding fish seeds shall be packed in a 16 litres to 20 litres capacity polystyrene box as outer protection where temperature is also better kept. Good quality tin cans having press-in-lid can also be used for outer protection of the seed pack. Only one polyethylene bag shall be packed in each tin/box.

5.2.7 For short distance road transport, cuboidal reinforced cardboards cartons of sturdy texture of 20 litres to 30 litres volume shall be used as the outer box. Top and bottom cover of such pack shall be securely closed after putting the polyethylene bag containing fish seed or ornamental fish.

5.3 As far as possible, the outer containers shall be insulated with thermocol lining from inside. Alternatively, some soft packing material (paper shaving/old newspaper/cotton wool) shall be provided at the bottom and four sides of the container to act as cushioning material to the polyethylene bag and to give protection from tearing off and temperature fluctuations.

5.4 Loading and unloading shall be undertaken quickly and be done immediately after the arrival of the consignment. Bags shall be dropped in holding tank/pond for 30 min for gradual acclimatisation to its water temperature. The mouth of bag shall be opened and water shall be added from pond/tank to the bag slowly for acclimatization to new water environment. The acclimatized seed shall be allowed to swim out of bags slowly.

6 LABELLING REQUIREMENTS

6.1 Each packed box/container, whether polystyrene box, tin can or cardboard carton, shall bear a label giving following information legibly and indelibly:

a) Name of the strain/species of fish;
b) Stage of fish seeds (spawn, fry or fingerlings);
c) Name, address and telephone number of the consignor; and
d) Name, address and telephone number of the consignee.

6.2 Each box shall be also marked with cautionary notice reading as under: ‘TOP PRIORITY, FISH SEEDS/LIVE FISH, HANDLE WITH CARE’. Cautionary notice should also be in the local language(s) apart from English.

6.3 Further the outer box shall bear on the face a red arrow showing the upper side.

7 Transport Requirement

7.1 Loading of the seed container (box/tin can/card board) shall be done efficiently and quickly to the transport vehicle. Such seed containers shall be stacked in the transport vehicle in 3 layers to 4 layers depending on the strength of the cardboard. More stacking layers can be used in case of polystyrene or tin can container.

7.2 During transport, jerks, jolts and shocks shall be avoided as far as possible.

7.3 Seed transport may preferably be done in cool hours of the day either in the morning, evening or night.

7.4 The packed seed shall be promptly transported to their destination using the shortest and smoothest route, without any unnecessary delays fish seed to ensure minimal mortality during transportation. The vehicle transporting fish seed on road should be given priority clearance with minimum detention.

7.5 Unloading of the seed packs shall be done immediately after the arrival of the of fish seed consignment. The containers shall be handled with care during storage in aircraft, train or motor lorry.

7.6 The seed transport vehicle shall have a contingency plan to address emergency and minimise stress during transport.

Table 1 Packing Density of Carp Spawn, Fry and Fingerlings

(*Clause* 5.2.5)

Sl No.	Size Range (mm)	Duration of Transport (h)	Number to be Packed Per Polyethylene Bag
(1)	(2)	(3)	(4)
i)	5 to 10	12 to 24	40 000 to 50 000
ii)	11 to 20	12 to 24	1 000 to 1 500
iii)	21 to 30	12 to 18	500 to 1 000
iv)	31 to 40	Up to 12	300 to 500
v)	41 to 50	Up to 12	200 to 300
vi)	51 to 60	Up to 12	100 to 200
vii)	61 to 80	Up to 12	50 to 100
viii)	81 to 100	Up to 12	40 to 50

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Fish, Fisheries and Aquaculture Sectional Committee, FAD 12

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