भारतीय मानक

Indian Standard

IS 6969 : 2024

(*Amalgamating IS 6540 : 1972*)

मानवीय उपभोग हेतु प्रशीतित पेय जल और बर्फ के उत्पादन, संचालन एवं बिक्री के लिए स्वास्थ्यकर स्थितियाँ — रीति संहिता

(पहला पुनरीक्षण)

Hygienic Conditions for Manufacture, Handling and Sale of Refrigerated Drinking Water and Ice for Human Consumption — Code of Practice

(First Revision)

ICS 13.060

भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

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July 2024 **Price Group 5**

Drinking Water and Carbonated Beverages Sectional Committee, FAD 14

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Drinking Water and Carbonated Beverages Sectional Committee had been approved by the Food and Agriculture Division Council.

Ice is widely consumed in foods, drinks and in various other forms, especially during summer season. Ice is sold to the consumers through a large variety of channels. Likewise, the sale of refrigerated drinking water in trolleys by itinerant vendors is still prevalent, especially during summer season. In the course of manufacture, transport, storage, handling and distribution of ice and refrigerated drinking water, there is a possibility of various contaminations including microbial contamination from a variety of sources including the water freezing equipment, containers and persons engaged in its manufacture and distribution. Many times, the water is cooled by directly putting the ice into it. The water is often offered for sale in tumblers which are not cleaned properly.

This standard was first published in 1973 under the title 'Code for hygienic conditions for handling and sale of refrigerated drinking water' and covered the hygiene code for refrigerated water only. While reviewing the standard, it was decided to amalgamate the provisions of hygienic conditions for manufacture and handling of ice for human consumption as per IS 6540 : 1972 in this standard and to update the code taking into account the contemporary hygiene practices. Accordingly, with the publication of this revision, IS 6540 : 1972 would stand withdrawn.

This standard is subject to the provisions of the *Factories Act*, 1948 *and Food Safety and Standards Act*, 2006, and the Rules and Regulations framed thereunder as amended from time to time.

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

For the purpose of deciding whether a particular requirement of the 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

HYGIENIC CONDITIONS FOR MANUFACTURE, HANDLING AND SALE OF REFRIGERATED DRINKING WATER AND ICE FOR HUMAN CONSUMPTION — CODE OF PRACTICE

(First Revision)

1 SCOPE

This standard prescribes the hygienic conditions required for manufacturing, transport, storage handling and sale of refrigerated drinking water and ice.

2 REFERENCES

The standards given below contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards:

IS No.	*Title*
IS 1172 : 1993	Code of basic requirements for water supply, drainage and sanitation (*fourth revision*)
IS 5522 : 2014	Stainless steel sheets and strips for utensils — Specification (*third revision*)
IS 6911 : 2017	Stainless steel plate, sheet and strip — Specification (*second revision*)
IS 10500 : 2012	Drinking water — Specification (*second revision*)
IS 15000 : 2024	Hazard analysis and critical control point (HACCP) — Requirements for any organization in the food chain (*second revision*)

3 TERMINOLOGY

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

3.1 Health Officer — The municipal health officer or any other officer of the health department, authorized by the health officer of the town, city, district or state on his behalf. Health officer includes Food Safety Commissioners and designated officers of Food Safety and Standards Authority of India.

3.2 Ice — A brittle, transparent, crystalline solid obtained by freezing water, compliant to IS 10500, irrespective of its size and shape and it can be in shaved, cubed or crushed form and meant for human consumption.

3.3 Refrigerated Drinking Water — Water of potable quality obtained by cooling by refrigeration and not by direct insertion of ice meant for human consumption.

4 GENERAL

Any person intending to manufacture, distribute, transport or sale refrigerated water or ice for human consumption must seek required licenses under the existing regulations by relevant government authorities, as applicable from time to time.

5 REFRIGERATION

5.1 Refrigeration Plant

5.1.1 *Site and Premises*

5.1.1.1 The building in which the water is refrigerated either to sell or for making ice, shall be located in a clean and healthy surrounding away from roadside where lot of dust arises due to vehicular traffic, garbage dumps, cattle stables, open sewage drains or places that are likely to breed flies. Premises should not have objectionable odour or smoke. There shall be no accumulation of trash, garbage or similar waste in the vicinity of the plant. There shall be a suitable storage shed or room for water trolleys. Access to site shall be controlled.

5.1.1.2 The structure of the building shall be of permanent nature and shall be suitable in size, construction and design to facilitate maintenance and hygienic operations, storage of raw materials and other requisites. It shall provide sufficient space for housing of equipment necessary for hygienic operations. The material of construction shall be washable or cleanable and shall be resistant to cleaning system applied.

5.1.1.3 No portion of the building shall be used for domestic purposes. In case there are other food manufacturing facilities in the same building, a clear

physical demarcation between the two should be done to avoid any possibility of cross contamination.

5.1.1.4 The floors of the rooms should be constructed of concrete or other equally impervious and easily cleanable material. They should be smooth, suitably sloped for drainage of water and provided with trapped drains.

5.1.1.5 Walls and ceilings of the rooms should have a smooth, non-absorbent light coloured surface, free from crevices and angles to facilitate their efficient cleaning. These shall be painted or lime-washed and cleaned as often as necessary. The junction of the floor with the walls and the junction between the two walls should be rounded to prevent accumulation of dust.

5.1.1.6 The manufacturing unit shall have adequate lighting and ventilation taking into account the number of workers, their hours of work and nature of operation. Ventilation and adequate lighting should be provided in accordance with *Food Safety and Standard* (*Licensing and Registration*) *Regulations*, 2011 as well as *Factories Act*, 1948, as amended from time to time. Proper ventilation is essential to prevent condensation and drippage. Exhaust fans shall be provided where necessary. The lighting bulbs or tubes shall have shatter proof covering to avoid contamination from glass pieces in case of accidental breakage.

5.1.1.7 The manufacturing unit shall be made fly-proof, rodent-proof and bird-proof and should be provided with self-closing double doors. The doors and windows should be covered with fly-proof wire gauze, and they shall open outwards.

5.1.1.8 The rooms and the area surrounding the plant should be kept clean and dust-free.

5.1.1.9 The building shall be maintained in proper state of repair and cleanliness.

5.2 General Plant Hygiene

5.2.1 Waste material shall be collected in covered receptacles and shall not be allowed to scatter on the floor of the plant. Suitable facilities for the collection and removal of refuse, floor sweepings and for disposal of wastes should he provided. It shall be disposed of in a manner which is not detrimental to the hygiene of the surroundings of the disposal.

5.2.2 Adequate steps shall be taken to prevent infestation of cockroaches and other household pests. Adequate pest control facility with trained in-house person shall be available or the pest control shall be outsourced for a periodical pest control procedure.

5.2.3 Adequate measures shall be taken to prevent moulds growth on equipment and internal surfaces of processing and storage rooms.

5.2.4 When pesticides are used, care shall be exercised to prevent contamination of equipment and other materials. Under no circumstances shall these be used during processing.

5.2.5 Floors and drains shall be kept clean. In the manufacturing unit, drains shall be provided with detachable covers.

5.2.6 No lavatory, sink, cesspool, or garbage shall be so situated or maintained that odours or fumes therefrom pervade any room where the ice is prepared/stored, water is cooled or filled in trolleys.

5.2.7 Proper places shall be provided for storage of brooms, brushes, buckets and other cleaning gears.

5.2.8 The factory effluents shall not be let off on road or adjacent fields.

5.2.9 Window glass and light fittings shall be maintained clean and dust-free at all times.

5.2.10 There shall be no cobwebs in any part of the unit. Birds and domestic animals shall not be allowed in any part of the unit.

5.3 Equipment and Container Cleanliness

5.3.1 *Installation and Construction of Equipment*

The equipment should be constructed and installed in such a manner as to facilitate efficient cleaning and sanitization and easy dismantling and assembling of all the parts that come in contact with water or ice. All the equipment, containers, lids and pipes shall be smooth, impervious and corrosion resistant. All the materials used for construction of those surfaces which come into contact with the water or ice shall be non-toxic, preferably of stainless steel of designation SS 304 (Austenitic X04 Cr19 Ni9) conforming to IS 5522 or IS 6911.

5.3.2 *Cleaning and Sanitization*

All the containers and lids should be cleaned thoroughly with the use of sodium carbonate or sodium bicarbonate or any other suitable detergent solution and sanitized with at least 50 ppm chlorine solution prior to their use. The residual chlorine may be removed by flushing the equipment with water to be cooled or made into ice. Food grade cleaning and sanitizer solutions shall be used.

5.4 Water Supply

5.4.1 There shall be an adequate supply of safe and potable water (*see* IS 10500).

5.4.2 Maximum care shall be taken with regard to both chemical and microbiological quality of water that is being used as raw material for refrigerated water and ice manufacturing.

5.4.3 For quality tolerances for water used for cooling, IS 10500 should be referred to as guideline.

5.4.4 The water prior to storage should be pre-chlorinated between 0.2 ppm to 0.5 ppm of residual chlorine.

5.4.5 The storage tanks for water should, unless completely sealed, be kept covered with tight-fitting lids, examined daily and cleaned properly and sanitized by spraying 100 ppm chlorine solution at least once every month. The date of the last cleaning and next cleaning shall be prominently displayed on the storage tank.

5.4.6 Water sample shall be got periodically examined, chemically and microbiologically, as desired by the licensing authority. A record of such examinations shall be maintained.

5.4.7 Running water under pressure shall be easily accessible to all rooms and areas in which water is cooled and equipment are washed.

Hot and cold water in ample supply shall be provided for plant clean-up needs, where necessary.

5.5 Employee Hygiene

5.5.1 Every person employed in the plant shall be medically examined by an authorized registered medical practitioner and the examination shall include X-ray of the chest for tuberculosis, examination of stool for protozoal and helminthic infestation and for any kind of other communicable disease-causing organisms, urine; and blood examination for venereal diseases. Subsequently, the employee shall be medically examined once a year or more frequently, if necessary, to ensure that he is medically fit and free from communicable diseases. A record of such examination shall be maintained.

5.5.1.1 It shall be impressed on all employees that they should notify the medical officer and management cases of fever, vomiting, diarrhoea, typhoid, dysentery, boils, cuts and sores and ulcers (however small), discharging ears and notifiable diseases occurring in their own homes and families.

5.5.1.2 No worker who is suspected to be suffering from any of the disorders listed in 5.5.1.1 shall be permitted to work inside the plant. The supervisor shall check the personal hygiene of the workers before the start of work and whenever they enter the refrigeration area after any absence.

5.5.2 Employees shall keep their finger nails short and clean, keep their shaves clean, and wash their hands with liquid soap or detergent and water before commencing work and after each absence, especially after using sanitary conveniences. Hand dryer or clean disposable towels shall be used for drying hand. No worker should allow his hands or any part of his body or clothing to come into contact with the water which is meant for cooling or for making ice. He or she should adopt strict hygienic practices so as to avoid adding any microbial contamination to the water.

5.5.3 All employees shall be inoculated and vaccinated against the enteric groups of diseases once a year and in case of an epidemic all workers shall be vaccinated. A record shall be maintained.

5.5.4 No worker shall be allowed to work without proper clothing and footwear.

5.5.5 Employees shall be provided with clean uniforms (preferably white) or aprons or both and clean washable caps, face masks, gloves, where necessary.

5.5.5.1 Separate room or place for changing the clothes shall be provided. The clothes shall not be hung in the refrigeration area or processing room.

5.5.5.2 The uniforms shall not be worn outside the plant but put on just before starting the work and changed when leaving.

5.5.6 Eating, spitting, nose cleaning or the use of tobacco in any form including smoking or chewing betel leaves shall be strictly prohibited within the refrigeration or manufacturing area of the unit. Notices to this effect shall be prominently displayed and enforced.

5.5.7 Sufficient and suitable sanitary conveniences shall be provided, maintained and kept clean in every factory. The conveniences shall be properly lighted. Separate conveniences shall be provided for each gender. The conveniences should have self-closing doors which shall not open directly into any work room in the factory. The conveniences shall always be maintained clean and in good condition.

5.5.8 Sufficient number of toilets and urinals and

wash basins, with adequate provision of nail brushes, soap and towels, in the prescribed manner should be provided, conveniently situated and accessible to workers at all times while they are at the plant (*see also* Table 3 of IS 1172). The wash basins shall be installed in or alongside the sanitary conveniences with hand free operation faucet controls (for example, elbow, foot or sensor-operated) to prevent direct hand contact.

5.6 Quality Control

Prepared refrigerated water and ice shall be periodically checked for the quality parameters such as microbiological and chemical parameters and the records of such testing shall be maintained by the plant staff.

6 TARSNPORT, STORAGE AND HANDLING

6.1 Vendors of refrigerated water and ice shall procure the refrigerated water or ice only from approved licensed plants.

6.2 All persons handling the refrigerated water and ice shall be healthy and free from communicable diseases. They should keep their fingernails short and clean, wear clean clothes and observe strict hygienic practices.

6.3 All vehicles used for transportation of the refrigerated water and ice should be so constructed and operated as to give reasonable protection to their contents from access of flies, microorganisms, dust and other contaminants. The vehicles should be maintained clean.

6.4 All premises where ice and refrigerated water is stored or sold shall be fully licensed for the purpose by the local health authority. The premises shall be maintained clean and shall be so constructed as to provide reasonable protection to ice and refrigerated water from access of flies, dust and other contaminants.

6.5 Ice and refrigerated water shall be stored in clean food grade containers made of material as permitted under *Food Safety and Standards* (*Packaging*) *Regulations*, 2018.

6.6 The ice and refrigerated water dispensing units shall be examined periodically for microbiological hygiene.

6.7 For water trolleys meant to sell refrigerated water, the main body of the container shall be made of stainless steel of grade 304 of IS 5522.

6.8 The pump, if used, for taking out the refrigerated water from the tank shall be made of stainless steel and no other material such as leather shall be used in the pump.

6.9 Insulation between outer and the inner tanks should be of the cork or fibreglass or any other material which shall be inert and does not have corrosive action with metal. Outer and inner tanks shall be hermetically sealed.

6.10 The water tank of the trolley shall be washed with bleaching powder at least once a week. The inner tank in direct contact with the water shall be rinsed with chlorinated water before filling it up with fresh refrigerated water.

6.11 The water trolleys shall be locked or sealed by the licensee before the start from the cooling plant. The seal put on the trolley by the licensee shall not be broken by the vendor.

6.12 The water trolleys shall be maintained in good repair, clean and hygienically fit conditions.

6.13 The tumblers for serving the water to the customers shall preferably be made of paper and of disposable type, the material of which can be recycled. In case tumblers of glass, metal, or other suitable material which are used again and again after cleaning are used, proper arrangements shall be provided for washing and disinfection of tumblers. The tumblers should be washed and disinfected with chlorine solution (200 ppm to 300 ppm of available chlorine) and then washed with potable water.

6.14 In no circumstances, the ice shall be added to trolleys of refrigerated water.

7 VENDOR HYGIENE

The requirements of hygiene of vendors for sale of ice and refrigerated water shall be the same as those of the employee hygiene in the manufacturing plant (*see* 5.5). The record of vaccinations of the vendor shall be kept at site.

8 TRAINING

8.1 Adequate periodical training shall be imparted to all the employees and vendors, preferably by a food safety supervisor trained under FoStaC (Food Safety Training and Certification) programme. Records of such training shall be maintained in the plant.

8.2 Hazard analysis and critical control point (HACCP) (*see* IS 15000) program shall be implemented for prevention of food safety hazards from time to time for all employees and vendors.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Drinking Water and Carbonated Beverages Sectional Committee, FAD 14

Organization	*Representative(s)*
CSIR - Central Food Technological Research Institute, Mysuru	DR SRIDEVI ANNAPURNA SINGH **(*Chairperson*)**
All India Association of Natural Mineral Water Industry, Ahmedabad	SHRI BEHRAM MEHTA
All India Food Processors Association, New Delhi	SHRI K. GANESH SHRI VENKATESH SOSLE (*Alternate* I) SHRI MOHIT CHAUDHARY (*Alternate* II)
All India Network Project on Pesticide Residues, New Delhi	DR VANDANA TRIPATHY
Bhabha Atomic Research Centre, Food Technology Division (BARC), Mumbai	DR SANJAY KUMAR JHA DR SUNIL KUMAR SAHOO (*Alternate*)
Bhavan's Research Center (Microbiology), Mumbai	DR SANDHYA SHRIVASTAVA DR NISHITH DESAI (*Alternate*)
Bureau of Indian Standard, New Delhi	MS SHUBHANJALI UMRAO
Central Ground Water Board (CGWB), Faridabad	SHRI YASHVIR SINGH
Central Pollution Control Board (CPCB), New Delhi	SHRI P. K. MISHRA
Centre for Science and Environment (CSE), New Delhi	MS SUNITA NARAIN SHRI AMIT KHURANA (*Alternate*)
Confederation of Indian Food Trade & Industry (CIFTI)-FICCI, New Delhi	SHRI DEEPAK JASYAL MS VARSHA YADAV (*Alternate*)
Confederation of Indian Industry, New Delhi	MS NEHA AGGARWAL MS MAMTA ARORA BUDHIRAJA (*Alternate*)
Consumer Education and Research Centre, Ahmedabad	SHRI H. S. TRIPATHI DR DOLLY A. JANI (*Alternate*)
Consumer Research, Education, Action, Training and Empowerment (CREATE), Paramakudi	DR P. DURAISINGAM
CSIR - Central Food Technological Research Institute (CSIR - CFTRI), Mysuru	DR MUKESH KAPOOR MS VANAJAKSHI (*Alternate*)
CSIR - Indian Institute of Toxicology Research, Lucknow	DR BHASKAR NARAYAN DR KAUSAR M. ANSARI (*Alternate*)
CSIR - National Environment Engineering Research Institute, Nagpur	DR P. K. LABHASETWAR DR NOOR AFSHAN KHAN (*Alternate*)
Delhi Jal Board, New Delhi	DR SANJAY SHARMA DR ANIL KUMAR MISHRA (*Alternate*)
Envirocare Laboratories Private Limited, Thane	DR NILESH AMRITKAR DR PRITI AMRITKAR (*Alternate*)
Federation of All India Packaged Drinking Water Manufacturers Association (FIPMA), Mumbai	SHRI APURVA NARENDRA DOSHI SHRI NAVEEN GOEL (*Alternate* I) MS CHARU GUSAIN (*Alternate* II)
Food Research and Analysis Centre, New Delhi	SHRI ANIL KUMAR MS KAVITA RANA (*Alternate*)

Organization	*Representative(s)*
ICMR - National Institute of Cholera and Enteric Diseases, Kolkata	DR SHANTA DUTTA DR RANJAN KUMAR NANDY (*Alternate*)
ICMR - National Institute of Nutrition, Hyderabad	DR N. ARLAPPA DR C. S. SURYA GOUD (*Alternate*)
Indian Beverage Association, New Delhi	SHRI J. P. MEENA SHRI RAJENDRA MOHAN DOBRIYAL (*Alternate*)
Ministry of Jal Shakti, Department of Drinking Water and Sanitation, New Delhi	SHRI SUMIT PRIYADARSHI
Mohan Meakins Limited, Ghaziabad	DR CHAUDHARY SHALU SINGH SHRI SUDEEP TYAGI (*Alternate*)
Safe Water Network, New Delhi	SHRI RAVINDRA SEWAK MS POONAM SEWAK (*Alternate*)
The Greater Chennai Packaged Drinking Water Manufacturers Association, Chennai	SHRI J. AANTHNARAYANAN SHRI V. MURALI (*Alternate*)
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Panel on Hygienic Conditions for Manufacturer of Soft Drink, Ice and Refrigerated Drinking Water, FAD 14/Panel 05

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