



FOOD SAFETY AND STANDARDS  
AUTHORITY OF INDIA

*Inspiring Trust, Assuring Safe & Nutritious Food*

## **WATER MANUAL**



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## **Introduction to Manual**

The manual is designed for small, medium and large scale water processing manufacturing plant.

This manual explains General Requirements on Hygienic and Sanitary Practices to be followed by all Food Business Operators engaged in Food service establishments, as per Food Safety & Standard Act, 2006.

This manual presents bare minimum requirements of Food Safety and Hygiene to be followed by Food Business Operators along with Industry best practices.

The objective of this manual is to train the personal that can be designated as Food Safety Supervisors in the Water treatment units, about food safety and hygiene requirements which are to be followed in their businesses. The Food Safety Supervisors (FSS) may interpret these Requirements according to the size and type of their establishment.

## 1. HYGIENE PRESCRIPTIONS FOR COLLECTION OF DRINKING WATER

### 1.1 Extraction or Collection

**1.1.1** In the case of extraction or collection of water intended for packaging from surface water or ground water or sea water sources or any other consistent source of water, it should be ensured that it is safe from pollution contamination, whether caused by natural occurrence or actions or actions of neglect or ill will.

**1.1.2** The unit shall identify the parameters with its frequency to be tested in raw water for usage and for designing the process parameters.

**1.1.3** In particular, this includes identifying any specific points in such activities where a high probability of contamination may exist and taking specific measures to minimize that probability.

### 1.2 Materials

The pipes, pumps or other possible devices coming into contact with water and used for its collection should be made of such material that they do not change the quality of water.



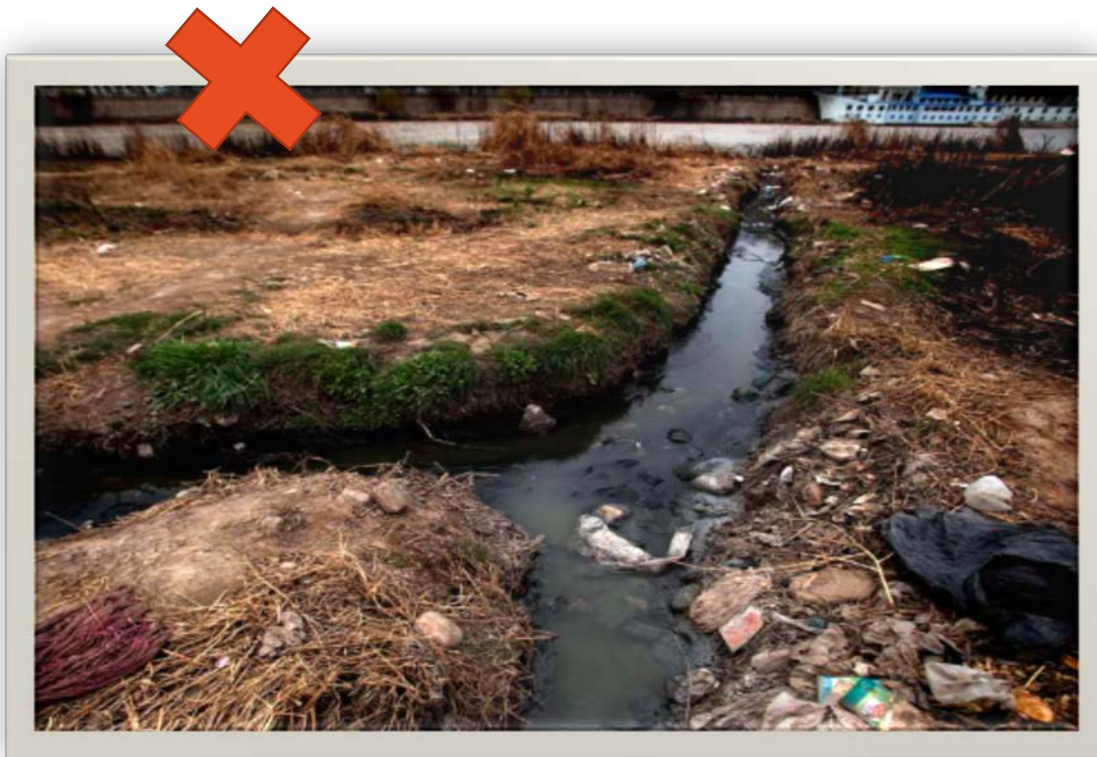
## 2. PROTECTIVE MEASURES

**2.1** All possible precautions should be taken within the protected perimeter (zone of protection) to avoid any pollution of, or external influence on, the quality of the ground or surface water.

**2.1.1** Disposal of liquid, solid or gaseous waste that could pollute the ground or surface water should be controlled.

**2.1.2** Disposal of pollutants such as microorganisms, fertilizers, hydrocarbons, detergents, pesticides, phenolic compounds, toxic metals, radioactive substances and other soluble organic and inorganic substances in the watershed should be avoided.

**2.1.3** Drinking water sources should not be in the path of potential sources of underground contamination, such as sewers, septic tanks, industrial waste ponds, gas or chemical tanks, pipelines and solid waste disposal sites.



## **2.2 Protection of the Area of Origin**

**2.2.1** The immediate surroundings of the extraction or collection area should be protected by limiting access to authorized persons only.

**2.2.2** Wellheads and spring outflows should be protected by a suitable structure to prevent entry by unauthorized individuals, pests and other sources of extraneous matter.

**2.2.3** Where sampling points are necessary, they should be designed and operated to prevent any contamination of the water.

**2.2.4** Methods and procedures for maintaining the extraction facilities should be hygienic. They should not be a potential hazard to humans or a source of contamination for the water.

**2.2.5** Wells should be properly disinfected following construction and development of new wells nearby, after pump repair or replacement, or any well maintenance activity and whenever biological growth inhibits proper operation.

**2.2.6** Water Extraction devices such as those used for bore holes should be constructed and maintained in a manner that avoids contamination of water and minimizes hazards to human health.

## **3. TRANSPORT OF DRINKING WATER**

### **3.1 Means of Transport, Piping and Reservoirs**

**3.1.1** Water collection chambers should be disinfected within a reasonable time before use

**3.1.2** When storage and transport of the water intended for bottling from the point of origin to the processing plant is necessary, these operations must be conducted in a hygienic manner to prevent any contamination.

**3.1.3** Where or when they are necessary, bulk containers and conveyances such as tanks, piping and tanker trucks should be designed and constructed so that they:

- a) Do not contaminate the water intended for bottling;
- b) Can be effectively cleaned and disinfected;
- c) Provide effective protection from contamination, including dust and fumes; and
- d) Allow any situation that arises to be checked easily.

### **3.2 Maintenance of Vehicles and Reservoirs**

**3.2.1** Means of transport of water intended for bottling should be kept in an appropriate state of cleanliness, repair and condition.

**3.2.2** Containers and conveyances, particularly in bulk transport, should preferably be used only for transporting water intended for bottling.

**3.2.3** When this cannot be achieved and should conveyances and bulk containers be used for water transportation, it must be cleaned and disinfected as necessary to prevent contamination.



## **4. ESTABLISHMENT FOR PROCESSING OF DRINKING WATER—DESIGN AND FACILITIES**

### **4.1 Location**

**4.1.1** Establishments should be located in areas which are free from objectionable odours, smoke, dust or other contaminants and are not subject to flooding.



**4.1.2** When subsequent (after establishment of the unit) developments in the area result in any deterioration of the conditions, appropriate remedial measures shall be put in place to prevent contamination in the final product during its processing, filling, storage and dispatch.

## **4.2 Roadways and Areas Used by Wheeled Traffic**

**4.2.1** Such roadways and areas serving the establishment which are within its boundaries or in its immediate vicinity should have a hard paved surface suitable for wheeled traffic.

**4.2.2** There should be adequate drainage and provision should be made for protection of the extraction area.

## **4.3 Building and Facilities**

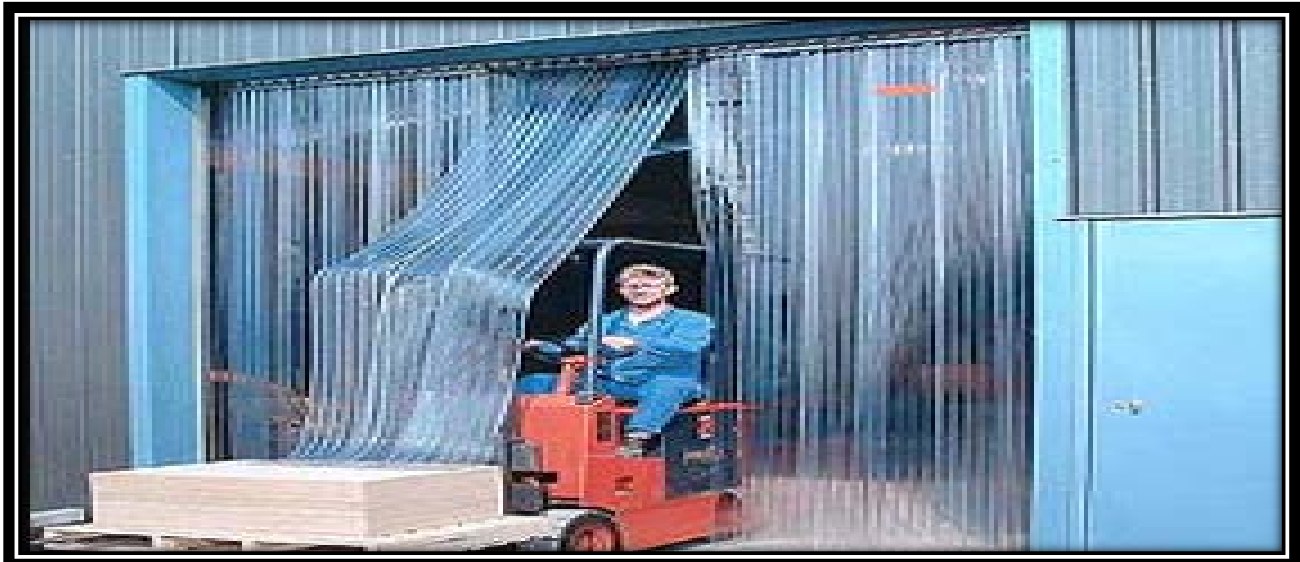
### **4.3.1 Type of Construction**

**4.3.1.1** Buildings and facilities should be of sound construction and maintained in good repair.



**4.3.1.2** One or more of the following should be installed on doors, hatches and other opening to the building to render opening pest proof:

- a) Doors, self-closing type,
- b) Air curtains or Strip curtains.
- c) Strip curtains



### **4.3.2 Disposition of Holding Facilities**

**4.3.2.1** Rooms for recreation, for storing or packaging of water and areas for cleaning of containers to be reused should be apart from the bottling areas to prevent the end product from being contaminated.

**4.3.2.2** Raw materials and packaging materials and any other materials which come into contact with drinking water should be stored apart from other materials.

**4.3.3** Adequate working space should be provided to allow for satisfactory performance of all operations.

**4.3.4** The design should be such as to permit easy and adequate cleaning and to facilitate proper supervision of hygiene for drinking water.

**4.3.5** Where appropriate, the internal design and layout of establishments should protect against cross-contamination between and during operations.



**4.3.6** Buildings and facilities should be designed to facilitate hygienic operations by means of a regulated flow in the process from the arrival of the drinking water at the premises to the finished product, and should provide for appropriate conditions for the process and the product.

#### **4.3.7 Drinking Water Handling, Storing and Bottling Areas**

##### **4.3.7.1 Floors**

**4.3.7.1.1** Where appropriate, should be of water-proof, non-absorbent, washable, non-slip and non-toxic materials, without crevices, and should be easy to clean and disinfect.

**4.3.7.1.2** Where appropriate, floors should have sufficient slope for liquids to drain to trapped outlet.

#### **Floors, ceilings and walls -**



**Cleanable, durable,  
impervious to moisture**



**Cracks allow bacteria  
and molds to accumulate**

#### **4.3.7.2 Walls**

**4.3.7.2.1** Where appropriate, should be of water proof, non-absorbent, washable and non-toxic materials and should be light coloured.

**4.3.2.7.2** Up to a height appropriate for the operation they should be smooth and without crevices, and should be easy to clean and disinfect.

**4.3.2.7.3** Where appropriate, angles between walls, between walls and floors and between walls and ceilings should be sealed and smoothen to facilitate cleaning.

#### **4.3.7.3 Ceilings**

**4.3.7.3.1** Should be so designed, constructed of hard material and finished as to prevent the accumulation of dirt and minimize, condensation, mould growth and flaking, and should be easy to clean.

**4.3.7.3.2** If false ceiling is provided, material used shall satisfy all the above requirements.

#### **4.3.7.4 Windows**

**4.3.7.4.1** Windows and other openings should be so constructed as to avoid accumulation of dirt and those which open should be fitted with screens.

**4.3.7.4.2** Screens should be easily movable for cleaning and kept in good repair.



#### 4.3.7.5 Doors

Should have smooth, non-absorbent surfaces and, where appropriate, be self-closing and close fitting type.



#### 4.3.7.6 Stairs, lift cages and auxiliary structures

Platforms, ladders, chutes, should be so situated and constructed as not to cause contamination to drinking water. Chutes should be constructed with provision of inspection and cleaning hatches.



#### 4.3.7.7 Piping

Piping for drinking water lines should be independent of non-potable water.

**4.3.8** In drinking water handling areas all overhead structures and fittings should be installed in such a manner as to avoid contamination directly or indirectly of drinking water and raw materials by condensation and drip and should not hamper cleaning operations. They should be insulated where appropriate and be so designed and finished as to prevent the accumulation of dirt and to minimize condensation, mould growth and flaking. They should be easy to clean.



**4.3.9** Living quarter, toilets and areas where animals are kept should be completely separated and should not open directly on to drinking water handling areas.

**4.3.10** Where appropriate, establishments should be so designed that access can be controlled.

**4.3.11** The use of material which cannot be adequately cleaned and disinfected, such as, wood, should be avoided unless its use would not be a source of contamination.



### **4.3.12 Canalization, Drainage Lines**

**4.3.12.1** Canalization and drainage and used water lines should be built and maintained in such a manner as not to present any risk whatsoever of polluting the underground water source.

**4.3.12.2** All the drain outlets shall be properly trapped to prevent entry of insects/vermins into the unit through the drain pipes.

**4.3.12.3** There should not be any water stagnation near the drain outlets and the drain outlets and traps shall be easily cleanable.



## **4.4 Hygienic Facilities**

### **4.4.1 Effluent and Waste Disposal**

Establishments should have an efficient effluent and waste disposal system which should at all times be maintained in good order and repair. All effluent lines (including sewer system) should

be large enough to carry the full loads and should be so constructed as to avoid contamination of potable water supplies.

#### **4.4.2 Changing Facilities and Toilets**

**4.4.2.1** Adequate, suitable and conveniently located changing facilities and toilets should be provided in all establishment.

**4.4.2.2** Toilets should be so designed as to ensure hygienic removal of waste matter. These areas should be well lighted, ventilated and should not open directly on to drinking water handling areas.

**4.4.2.3** Hand washing facilities with warm or hot water in cold climates and normal water otherwise, a suitable hand cleaning preparation.

**4.4.2.4** Suitable hygienic means of drying hands, should be provided adjacent to toilets and in such a position that the employee shall have to use them when returning to the processing area.





**4.4.2.5** Where hot/warm and normal water are available mixing taps should be provided. Taps shall preferably be of a non-hand operated type.

**4.4.2.6** Where paper towels are used, a sufficient number of dispensers and receptacles should be provided near each washing facility.

**4.4.2.7** Notices should be posted directing personnel to wash their hands after using the toilet.



#### **4.4.4 Hand Washing Facilities in Processing Area**

**4.4.4.1** Adequate and conveniently located facilities for hand washing and drying should be provided wherever the process demands. Alternatively a non-contaminating hand sanitization and disinfection system may also be used.

**4.4.4.2** Where appropriate facilities for hand disinfection should also be provided (Where ever required, appropriate facilities for hand disinfection should also be provided).

**4.4.4.3** There should be suitable hygienic means of drying hands. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided adjacent to each washing facility.

**4.4.4.4** The facilities should be furnished with properly trapped waste pipes leading to drains.

#### **4.4.5 Ventilation**

**4.4.5.1** Adequate ventilation should be provided to prevent excessive heat, steam condensation and dust and to remove contaminated air.

**4.4.5.2** The direction of the air flow should never be from a dirty area to a clean area.

**4.4.5.3** Ventilation openings should be provided with a screen or other protecting enclosure of non-corrodible material.



#### 4.4.6 Facilities for Storage of Waste and Inedible Material

4.4.6.1 Facilities should be provided for the storage of waste and inedible material prior to removal from the establishment.

4.4.6.2 These facilities should be designed to prevent access to waste or inedible material by pests and to avoid contamination of drinking water; equipment, buildings or roadways on the premises.



#### 4.5 Equipment and Utensils

##### 4.5.1 Materials

4.5.1.1 All equipment and utensils used in drinking water handling areas and which may contact the drinking water should be made of material which does not transmit toxic substances, odour or

taste, is non-absorbent, is resistant to corrosion and is capable of withstanding repeated cleaning and disinfection.

**4.5.1.2** Surfaces should be smooth and free from pits and crevices.

**4.5.1.3** The use of wood and other materials which cannot be adequately cleaned and disinfected should be avoided except when their use would not be a source of contamination.

#### **4.5.2 Hygienic Design, Construction and Installation**

All equipment and utensils should be so designed and constructed as to prevent hazards and permit easy and thorough cleaning and disinfection.



## 5. ESTABLISHMENT

### 5.1 Maintenance

The buildings, equipment, utensils and all other physical facilities of the establishment, including drains, should be maintained in good repair and in an orderly condition.

### 5.2 Cleaning and Disinfection

**5.2.1** To prevent contamination of drinking water, all equipment and utensils should be cleaned as frequently as necessary and disinfected, whenever circumstances demand.

**5.2.2** Adequate precautions should be taken to prevent drinking water from being contaminated during cleaning or disinfection of rooms, equipment or utensils, by wash water and detergents or by disinfectants and their solutions.

**5.2.3** Detergents and disinfectants should be suitable for the purpose intended.

**5.2.4** Any residues of these agents on a surface which may come in contact with drinking water should be removed by thorough rinsing with water, before the area or equipment is again used for handling drinking water.

**5.2.5** Either immediately after cessation of work for the day or at such other times as may be appropriate, floors, including drains, auxiliary structures and walls of water handling areas should be thoroughly cleaned.



## **6. PERSONNEL HYGIENE AND HEALTH REQUIREMENTS**

### **6.1 Hygiene Training**

Managers of establishments should arrange for adequate and continuing training of all water handlers in hygienic handling of water and in personal hygiene so that they understand the precautions necessary to prevent contamination of drinking water.

### **6.2 Medical Examination**

**6.2.1** Persons who come into contact with drinking water in the course of their work should have a medical examination prior to employment. As far as possible, a system should be put into place to avoid direct contact of persons or handlers with drinking water.

**6.2.2** There shall be special examination, if the official agency having jurisdiction acting on medical advice, considers that this is necessary, whether because of epidemiological considerations or the medical history of the prospective water handler.

**6.2.3** Medical examination of water handlers should be periodically carried out as and when clinically or epidemiologically indicated.

**6.2.4** The drinking water units shall maintain records for all medical examinations carried out

### **6.3 Communicable Diseases**

**6.3.1** The management should take care to ensure that no person, whether known or suspected to be suffering from, or to be a carrier of disease likely to be transmitted is permitted to work in any drinking water handling area in any capacity

**6.3.2** Also to be separated from water handling areas are those afflicted with infected wounds, skin infections, sores or diarrhoea.



**6.3.3** All areas in which there is any likelihood of such a person directly or indirectly contaminating drinking water with pathogenic micro-organisms should not be associable to these people.

**6.3.4** Any person so affected should immediately report to the management.

#### **6.4 Injuries**

**6.4.1** Any person who has a cut or wound should not continue to handle drinking water or contact surfaces until the injury is completely protected.

**6.4.2** The protection shall be with a waterproof covering which is firmly secured and which is conspicuous in colour.

**6.4.3** Adequate first-aid facilities should be provided for this purpose.



## 6.5 Washing of Hands

**6.5.1** Every person, while on duty in a drinking water handling area, should wash the hands frequently and thoroughly with a suitable hand cleaning preparation under running warm water.

**6.5.2** Hands should always be washed before commencing work, immediately after using the toilet, after handling contaminated material and whenever else necessary.

**6.5.3** After handling any material which might be capable of transmitting disease, hands should be washed and disinfected immediately.

**6.5.4** Notices requiring hand-washing should be displayed.

**6.5.5** There should be adequate supervision to ensure compliance with this requirement.



## 6.6 Personal Cleanliness

**6.6.1** Every person engaged in a drinking water handling area should maintain a high degree of personal cleanliness while on duty.

**6.6.2** They should, at all times while so engaged, wear suitable protective clothing including head covering and footwear.

**6.6.3** These should be cleanable, unless designed to be disposed off and should be maintained in a clean condition consistent with the nature of the work in which the person is engaged.

**6.6.4** Personnel should not wear any insecure jewellery when engaged in handling drinking water.

## **6.7 Personal Behavior**

Any behavior which could result in contamination of drinking water, such as eating, use of tobacco, chewing (for example, gum sticks, betel nuts, etc) or unhygienic practices, such as, spitting, should be prohibited in drinking water handling areas.

## **7. ESTABLISHMENT: HYGIENIC PROCESSING REQUIREMENTS**

### **7.1 Raw Material Requirements**

**7.1.1** Control measures must be taken at all steps of processing to ensure that food safety and suitability are not compromised by hazards or other contaminants during operations.

**7.1.2** Should there be a perceptible lacking in meeting the requirements, necessary corrective measures are immediately to be taken.

**7.1.3** No water intended for bottling should be accepted by an establishment if it is known to contain pathogens or excessive residues of pesticides or other toxic substances.

### **7.2 Treatment**


**7.2.1** A hazard analysis which takes into consideration pathogens and toxic substances should be undertaken in the overall context of the application of principles such as HACCP to the production of Packaged Drinking water.

**7.2.2** This should provide the basis for determining the appropriate combination of control measures to reduce, eliminate or prevent, as necessary, hazards (microbiological, chemical and radiological) for the production of safe Packaged Drinking water.

**7.2.3** When necessary, treatments to remove or reduce chemical substances may include chemical and particulate (mechanical) filtration such as achieved with surface filters (e.g., pleated membrane filters) or depth filters (e.g., sand or compressed fibre (cartridge) filters), activated carbon filtration, demineralization (deionization, water softening, reverse osmosis, nano-filtration), and aeration.

**7.2.4** All treatments of water intended for bottling should be carried out under controlled conditions to avoid any type of contamination, deterioration, growth of pathogenic and spoilage micro-organisms, formation of toxic by-products and the presence of residues of water treatment chemicals in amounts that raise health concerns.

H A C C P P L A N									
Critical Control Point (CCP)	Hazard(s) Addressed	Critical Limits	MONITORING				Corrective Actions	Verification	Record Keeping
			What	How	When	Who			



### **7.3 Packaging Material and Containers**

**7.3.1** All packaging materials should be stored in a clean and hygienic manner.

**7.3.2** The packaging material should be sound and should provide appropriate protection from contamination.

**7.3.3** Only packaging material required for immediate use should be kept in the packing or filling area.

**7.3.4** Product containers should not have been used for any purpose that may lead to contamination of the product.

**7.3.5** In case of new containers, if there is a possibility that they have been contaminated, should be cleaned and disinfected.

**7.3.6** When chemicals are used for these purposes, the container should be rinsed. Containers should be well drained after rinsing.

### **7.4 Filling and Sealing of Containers**

**7.4.1** Packaging should be done under conditions that preclude the introduction of contaminants in the product.

**7.4.2** The methods, equipment and material used for sealing should guarantee a tight and impervious sealing

**7.4.3** The system should not damage the containers nor deteriorate the physical, chemical, microbiological and organoleptic qualities of drinking water.

**7.4.4** Reused containers and where necessary other containers should be washed and disinfected in an appropriate system and positioned within the processing plant so as to minimize post-sanitizing contamination prior to filling and sealing.

**7.4.5** Disposable containers and closures shall not be ready for use without prior rinsing/disinfecting in the filling area. The filling and capping of disposable containers shall be done in system where there is minimal usage of hands so as to avoid contamination during filling and capping.



## **7.5 Packaging of Containers**

**7.5.1** Bottling operations (i.e. cleaning, rinsing, filling and sealing of containers) should be conducted in a manner that protects against contamination.

**7.5.2** Control measures may include the use of an enclosed area and a containment enclosed system separate from other operations of the processing plant to protect against contamination.

**7.5.3** Dust, dirt, microorganisms in the air, and condensation should be controlled and monitored.

**7.5.4** New containers should be inspected and, if necessary, cleaned and disinfected.

**7.5.5** Closures are generally supplied in a ready to use state and should be tamper resistant and the end capping shall be leak proof; they are not reusable.

## **7.6 Lot / Batch Identification**

**7.6.1** Each container shall be permanently marked with code to identify the producing factory and the lot.

**7.6.2** A lot is quantity of drinking water produced under identical conditions, all packages of which should bear a lot number that identifies the production during a particular time, interval and usually from a particular processing line or other processing unit.

**7.6.3** The unit shall establish a traceability and recall plan.

## **7.7 Processing and Production Records**

**7.7.1** Permanent, legible and dated records of pertinent processing and production details should be kept concerning each lot.

**7.7.2** These records should be retained for a period that exceeds the shelf life of the product or longer, if required.

## **7.8 Storage and Transport of the End-Product**

**7.8.1** The end-product should be stored and transported under such conditions as will preclude contamination with and/or proliferation of micro-organisms and protect against deterioration of the product or damage to the container.

**7.8.2** During storage, periodic inspection of the end-product should take place to ensure that only drinking water which is fit for human consumption is dispatched and that the end-product specification are complied with.

**7.8.3** Effective cleaning and, where necessary, disinfection should take place between loads in the transport vehicle and in frequency defined through Hazard analysis for storage areas.

**7.8.4** Storage instructions for the end product shall be properly mentioned on the labels.



## Annexure 1

### FOOD SAFETY AND STANDARDS (FOOD PRODUCTS AND FOOD ADDITIVES) REGULATION, 2011

#### REQUIREMENTS

##### **1.1 Definitions:**

**Packaged Drinking Water ( other than Mineral water) :** means water derived from surface water or underground water or sea water which is subjected to hereinafter specified treatments, namely, decantation, filtration, combination of filtration, aerations, filtration with membrane filter depth filter, cartridge filter, activated carbon filtration, de-mineralisation, re-mineralisation, reverse osmosis and packed after disinfecting the water to a level that shall not lead to any harmful contamination in the drinking water by means of chemical agents or physical methods to reduce the number of microorganisms to a level beyond scientifically accepted level for food safety or its suitability. Provided that sea water, before being subjected to the above treatments, shall be subjected to desalination and related processes.

**Mineral Water:** Mineral water means includes all kinds of Mineral Water or Natural mineral water by whatever name it is called and sold

**Natural mineral water:** Natural mineral water is water clearly distinguished from ordinary drinking water because -

- (a) it is characterized by its content of certain mineral salts and their relative proportions and the presence of trace elements or of other constituents;
- (b) it is obtained directly from natural or drilled sources from underground water bearing strata and not from Public water supply for which all possible precautions should be taken within the protected perimeters to avoid any pollution of, or external influence on, the chemical and physical qualities of natural mineral water.
- (c) of the constancy of its composition and the stability of its discharge and its temperature, due account being taken of the cycles of minor natural fluctuations;



- (d) it is collected under conditions which guarantee the original microbiological purity and chemical composition of essential components;
- (e) it is packaged close to the point of emergence of the source with particular hygienic precautions;
- (f) it is not subjected to any treatment other than those permitted by this standard

**Naturally Carbonated Natural Mineral Water** : A naturally carbonated natural mineral water is a natural mineral water which, after possible treatment as given hereunder and re-incorporation of gas from the same source and after packaging taking into consideration usual technical tolerance, has the same content of carbon dioxide spontaneously and visibly given off under normal conditions of temperature and pressure.

**Non-Carbonated Natural Mineral Water** : A non-carbonated natural mineral water is a natural mineral water which, by nature and after possible treatment as given hereunder and after packaging taking into consideration usual technical tolerance, does not contain free carbon dioxide in excess of the amount necessary to keep the hydrogen carbonate salts present in the water dissolved.

**Decarbonated Natural Mineral Water** : A decarbonated natural mineral is a natural mineral water which, after possible treatment as given hereunder and after packaging, has less carbon dioxide content than that at emergence and does not visibly and spontaneously give off carbon dioxide under normal conditions of temperature and pressure.

**Natural Mineral Water Fortified with Carbon Dioxide from the Source** : A natural mineral water fortified with carbon dioxide from the source is a natural mineral water which, after possible treatment as given hereunder and after packaging, has more carbon dioxide content than that at emergence.

**Carbonated Natural Mineral Water** : carbonated natural mineral water is a natural mineral water which, after possible treatment as given hereunder and after packaging, has been made effervescent by the addition of carbon dioxide from another origin.

## 1.2 Characteristics Requirements:

### 1.2.1. Packaged Drinking Water (other than Mineral water)

<i>Sl.No. Characteristic</i>		<i>Requirements</i>
(1)	(2)	(3)
(1)	Colour	not more than 2 Hazen Units/ True Colour Units
(2)	Odour	Agreeable
(3)	Taste	Agreeable
(4)	Turbidity	Not more than 2 nephelometric turbidity unit (NTU)
(5)	Total Dissolved Solids	Not more than 500 mg/litre
(6)	pH	6.5-8.5
(7)	Nitrates (as NO <sub>3</sub> )	Not more than 45 mg/litre
(8)	Nitrites (as NO <sub>2</sub> )	Not more than 0.02 mg/litre
(9)	Sulphide (as H <sub>2</sub> S)	Not more than 0.05 mg/litre
(10)	Mineral Oil	Absent
(11)	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	Absent
(12)	Manganese (as Mn)	Not more than 0.1 mg/litre
(13)	Copper (as Cu)	Not more than 0.05 mg/litre
(14)	Zinc (as Zn)	Not more than 5 mg/litre
(15)	Fluoride (as F)	Not more than 1.0 mg/litre
(16)	Barium (as Ba)	Not more than 1.0 mg/litre
(17)	Antimony (as Sb)	Not more than 0.005 mg/litre
(18)	Nickel (as Ni)	Not more than 0.02 mg/litre
(19)	Borate (as B)	Not more than 5 mg/litre
(20)	Anionic surface active agents (as MBAS)	Not more than 0.2 mg/litre
(21)	Silver (as Ag)	Not more than 0.01 mg/litre
(22)	Chlorides (as Cl)	Not more than 200 mg/litre
(23)	Sulphate (as SO <sub>4</sub> )	Not more than 200 mg/litre
(24)	Magnesium (as Mg)	Not more than 30 mg/litre
(25)	Calcium (as Ca)	Not more than 75 mg/litre
(26)	Sodium (as Na)	Not more than 200 mg/litre
(27)	Alkalinity (as HCO <sub>3</sub> )	Not more than 200 mg/litre
(28)	Arsenic (as As)	Not more than 0.05 mg/litre
(29)	Cadmium (as Cd)	Not more than 0.01 mg/litre
(30)	Cyanide (as CN)	Absent
(31)	Chromium (as Cr)	Not more than 0.05 mg/litre
(32)	Mercury (as Hg)	Not more than 0.001 mg/litre
(33)	Lead (as Pb)	Not more than 0.01 mg/litre

(1)	(2)	(3)
(34)	Selenium (as Se)	Not more than 0.01 mg/litre
(35)	Iron (as Fe)	Not more than 0.1 mg/litre
(36)	Poly nuclear aromatic Hydrocarbons	Not detectable
(37)	Polychlorinated biphenyle (PCB)	Not detectable
(38)	Aluminium (as Al)	Not more than 0.03 mg/litre
(39)	Residual free chlorine	Not more than 0.2 mg/litre
(40)	(i) Pesticide residues considered individually -	Not more than 0.0001 mg/ litre (The analysis shall be conducted by using Internationally established test methods meeting the residue limits specified herein).
	(ii) Total pesticide residue —	Not more than 0.0005 mg/litre. (The analysis shall be conducted by Using Internationally established test methods meeting the residue limits specified herein).
(41)	"Alpha" activity	Not more than 0.1 picocurie/Litre (Bq)
(42)	"Beta" activity	Not more than 1 Bacquerel/Litre (Bq)
(43)	Yeast and mould counts 1 x 250 ml.	Absent
(44)	Salmonella and Shigella 1 x 250 ml	Absent
(45)	E.Coli or thermotolerant bacteria 1 x 250 ml	Absent
(46)	Coliform bacteria 1 x 250 ml	Absent
(47)	Faecal streptococci and Staphylococcus aureus 1 x 250 ml	Absent
(48)	Pseudomonas aeruginosa 1 x 50 ml	Absent
(49)	Sulphite reducing anaerobes 1x50	Absent
(50)	Vibrio cholera and V. parahaemolyticus 1 x 250 ml	Absent
(51)	Aerobic Microbial Count	The total viable colony count shall not exceed 100 per ml at 200C to 220C in 72 h on agar- agar or on agar - gelatin mixture, and 20 per ml at 370C in 24 h on agar-agar.

### 1.2.2. Mineral water

<i>Sl.No. Characteristic</i>		<i>Requirements</i>
(1)	(2)	(3)
(1)	Colour, hazen unit/true colour unit	not more than 2
(2)	Odour	Agreeable
(3)	Taste	Agreeable
(4)	Turbidity	Not more than 2 nephelometric turbidity unit (NTU)
(5)	Total Dissolved Solids	150-700 mg/litre
(6)	pH	6.5-8.5
(7)	Nitrates (as NO <sub>3</sub> )	Not more than 50 mg/litre
(8)	Nitrites (as NO <sub>2</sub> )	Not more than 0.02 mg/litre
(9)	Sulphide (as H <sub>2</sub> S)	Not more than 0.05 mg/litre
		Not more than 0.05 mg/litre
(10)	Mineral oil	Absent
(11)	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	Absent
(12)	Manganese (as Mn)	Not more than 2.0 mg/litre
(13)	Copper (as Cu)	Not more than 1 mg/litre
(14)	Zinc (as Zn)	Not more than 5 mg/litre
(15)	Fluoride (as F)	Not more than 1 mg/litre
(16)	Barium (as Ba)	Not more than 1.0 mg/litre
(17)	Antimony (as Sb)	Not more than 0.005 mg/litre
(18)	Nickel (as Ni)	Not more than 0.02 mg/litre
(19)	Borate (as B)	Not more than 5 mg/litre
(20)	Surface active agents	Not detectable
(21)	Silver (as Ag)	Not more than 0.01 mg/litre
(22)	Chlorides (as Cl)	Not more than 200 mg/litre
(23)	Sulphate (as SO <sub>4</sub> )	Not more than 200 mg/litre
(24)	Magnesium (as Mg)	Not more than 50 mg/litre
(25)	Calcium (as Ca)	Not more than 100 mg/litre
(26)	Sodium (as Na)	Not more than 150 mg/litre
(27)	Alkalinity (as HCO <sub>3</sub> )	75-400 mg/litre
(28)	Arsenic (as As)	Not more than 0.05 mg/litre
(29)	Cadmium (as Cd)	Not more than 0.003 mg/litre
(30)	Cyanide (as CN)	Absent
(31)	Chromium (as Cr)	Not more than 0.05 mg/litre
(32)	Mercury (as Hg)	Not more than 0.001 mg/litre
(33)	Lead (as Pb)	Not more than 0.01 mg/litre
(34)	Selenium (as Se)	Not more than 0.05 mg/litre
(35)	Poly nuclear aromatic hydrocarbons	Not Detectable
(36)	Polychlorinated biphenyle (PCB)	Not detectable

(37)	Pesticide Residue	below detectable limits
(38)	"Alpha" activity	Not more than 0.1 Bacquerel/litre (Bq)
(39)	"Beta" activity	Not more than 1 Bacquerel/litre (Bq)]
(40)	Yeast and mould counts	Absent
(41)	Salmonella and Shigella	Absent
(42)	E.Coli or thermotolerant Coliforms 1 x 250 ml	Absent
(43)	Total coliform bacteria A x 250 ml	Absent
(44)	Fecal streptococci and Staphylococcus aureus 1 x 250 ml	Absent
(45)	Pseudomonas aeruginosa 1 x 250 ml	Absent
(46)	Sulphite-reducing anaerobes 1 x 50 ml	Absent
(47)	Vibrocholera 1 x 250 ml	Absent
(48)	V Paraheamolyticus 1 x 250 ml	Absent

**Treatment and handling for Mineral Water:** Treatment permitted includes separation from unstable constituents, such as compounds containing iron, manganese, sulphur or arsenic, by decantation and/or filtration, if necessary, accelerated by previous aeration.

The treatments provided may only be carried out on condition that the mineral content of the water is not modified in its essential constituents, which give the water its properties.

The transport of natural mineral waters in bulk containers for packaging or for any other process before packaging is prohibited. Natural Mineral water shall be packaged in clean and sterile containers. The source on the point of emergence shall be protected against risks of pollution.

The installation intended for the production of natural mineral waters shall be such as to exclude any possibility of contamination. For this purpose, and in particular —

- (a) the installations for collection, the pipes and the reservoirs shall be made from materials suited to the water and in such a way as to prevent the introduction of foreign substances into the water,
- (b) the equipment and its use for production, especially installations for washing and packaging, shall meet hygienic requirements;
- (c) if, during production it is found that the water is polluted, the producer shall stop all operations until the cause of pollution is eliminated.

## Annexure 2

### FOOD SAFETY AND STANDARDS (PACKAGING AND LABELLING) REGULATIONS, 2011 REQUIREMENTS

#### **1.1 Packaging Requirements: (for both Packaged Drinking Water and Mineral Water)**

It shall be packed in clean, hygienic, colourless, transparent and tamperproof bottles/containers made of polyethylene (PE) (conforming to IS:10146 or polyvinyl chloride (PVC) conforming to IS : 10151 or polyalkylene terephthalate (PET and PBT) conforming to IS : 12252 or polypropylene conforming to IS : 10910 or foodgrade polycarbonate or sterile glass bottles suitable for preventing possible adulteration or contamination of the water.

All packaging materials of plastic origin shall pass the prescribed overall migration and colour migration limits.



#### **2.2 Labelling Requirements: (for both Packaged Drinking Water and Mineral Water)**

##### **2.2.1 General Requirements**

1. Every prepackaged food shall carry a label containing information as required here under unless otherwise provided, namely,—
2. The particulars of declaration required under these Regulations to be specified on the label shall be in English or Hindi in Devnagri script: Provided that nothing herein contained shall prevent the use of any other language in addition to the language required under this regulation.
3. Pre-packaged food shall not be described or presented on any label or in any labelling manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character in any respect;
4. Label in pre-packaged foods shall be applied in such a manner that they will not become separated from the container;
5. Contents on the label shall be clear, prominent, indelible and readily legible by the consumer under normal conditions of purchase and use;
6. Where the container is covered by a wrapper, the wrapper shall carry the necessary information or the label on the container shall be readily legible through the outer wrapper and not obscured by it
7. License Number shall be displayed on the principal display panel in the following format,



### **2.2.2. Labelling of Pre-packaged Foods**

In addition to the General Labelling requirements specified in 2.2.1 above every package of food shall carry the following information on the label, namely,—

- Name of Food
- List of Ingredients
- Nutritional Information
- Declaration regarding Veg or Non-Veg.
- Name and complete address of the manufacturer
- Net Quantity

- Lot / Code / Batch Identification
- Date of Manufacture
- Best Before Date

### 2.2.3. Specific Labelling Requirements

**Packaged Drinking Water (other than Mineral water):** Every Package of Packaged drinking water shall carry the following declaration in capital letters and the size of letters shall not be less than 3 mm in height.

PACKAGED DRINKING WATER

One time usable plastic bottles of packaged drinking water shall carry the following declaration.

CRUSH THE BOTTLE AFTER USE

**Mineral water:** Every Package of mineral water shall carry the following declaration in capital letters and the size of letters shall not be less than 3 mm in height.

NATURAL MINERAL WATER

One time usable plastic bottles of mineral water shall carry the following declaration.

CRUSH THE BOTTLE AFTER USE

### 2.2.4. Specific Restrictions on labels (for both Packaged Drinking Water and Mineral Water):

1. No claims concerning medicinal (preventative, alleviative or curative) effects shall be made in respect of the properties of the product covered by the standard Claims of other beneficial effects related to the health of the consumer shall not be made.



2. The name of the locality, hamlet or specified place may not form part of the trade name unless it refers to a packaged water collected at the place designated by that trade name.
3. The use of any statement or of any pictorial device which may create confusion in the mind of the public or in any way mislead the public about the nature, origin, composition, and properties of such waters put on sale is prohibited.

## **8. REFERENCES**

1. Food Safety and Standards (Food Products & Food Additives) Regulations, 2011
2. Food Safety and Standards (Packaging & Labelling) Regulations, 2011
3. Codex General Principles of Food Hygiene, CAC/RCP 1-1969
4. Codex Code of Hygienic Practice for Bottled/Packaged Drinking Waters (Other Than Natural Mineral Waters), CAC/RCP 48-2001
5. IS 14543 (2004): Packaged Drinking Water (Other than Packaged Natural Mineral Water).
6. IS 13428 (2005): Packaged Natural Mineral Water