SRI LANKA STANDARD 1211 : 2001

UDC 614.777

CODE OF HYGIENIC PRACTICE FOR BOTTLED (PACKAGED) DRINKING WATERS

SRI LANKA STANDARDS INSTITUTION

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SLS 1211 : 2001

Gr. 6

SRI LANKA STANDARDS INSTITUTION
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SRI LANKA.

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

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FOR BOTTLED (PACKAGED) DRINKING WATERS

FOREWORD

This standard was approved by the sectoral committee on agriculture and food and was authorized for adoption and publication as a Sri Lanka Standard by the council of the Sri Lanka Standards Institution on 2001-04-17.

This standard is based on Codex Alimentarius Commission/Recommended International Code of Hygienic practice for bottled (packaged) drinking waters. AC/RCP……..*

The purpose of publishing a code of practice of this nature is to provide guidance to the manufacturers and other related persons as to ensure hygienic handling of bottled (packaged) drinking waters.

During the formulation of this code due consideration has been given to the relevant provisions made under the Sri Lanka Food Act No. 26 of 1980 and the regulations framed thereunder.

1. SCOPE

This code recommends general techniques for collecting, processing, labeling, packaging, storing, transporting, distributing and offering for sale of drinking waters for direct consumption.

All bottled/packaged drinking waters other than natural mineral water are covered by this code.

2. REFERENCES

SLS 143	Code of practice for general principles of food hygiene
SLS 894	Specification for Bottled Drinking Water
SLS 614	Specification for potable water
	Part 1 : Physical and chemical requirements
	Part 2 : Bacteriological requirements
SLS 1173	Guidelines for the application of the HACCP

*under preparation (final step)

3. DEFINITIONS

For the purpose of this code the following definitions shall apply :

3.1 Bottled (packaged) drinking water

Water filled into hermetically sealed containers of various compositions, forms, and capacities that is safe and suitable for direct consumption without necessary further treatment. Bottled drinking water is considered a food. The terms “drinking” and “potable” are used interchangeably in relation to water.

3.2 Disinfection

The reduction, by means of chemical agents and/ or physical methods, of the number of micro-organisms to a level that does not compromise food safety or suitability.

3.3 Drinking water systems

Public or private systems providing the consumer with tap water safe and suitable for direct consumption.

3.4 Establishment

Any building(s), area(s) or surroundings in which water intended for bottling is collected, processed and bottled.

3.5 Food

For the purposes of this code, the term includes bottled/packaged drinking water.

3.6 Food handling

Any operation pertaining to collecting, processing, bottling, packing of bottles, storing, transporting, distributing and marketing of bottled drinking water.

3.7 Food hygiene

All conditions and measures necessary to ensure the safety and suitability of bottled drinking water at all stages of its production.

3.8 Ground water

Waters such as spring water, artesian water, and well water originating from subsurface aquifers. Ground waters may be classified broadly as protected or unprotected water. Protected ground waters are not directly influenced by surface water or the surface environment.

3.9 ingredient

Any substance, including food additives used to manufacture or prepare foods, found in a finished product, sometimes in a modified form (it may or may not be suitable for human consumption without further treatment).

3.10 pests

Any animals capable of directly or indirectly contaminating bottled drinking waters.

3.11 surface water

Waters open to the atmosphere such as streams, rivers, lakes, ponds and reservoirs.

4. PRIMARY PRODUCTION

These guidelines are supplemental to those set forth in Clause 4 of **SLS 143**.
Prior to utilizing a water for bottling purposes, the chemical composition and microbiological quality of the water should be established, over an appropriate period to allow for variations.

In this regard guidance shall be obtained from **SLS 614 : Part 1** and **SLS 614 : Part 2**.

4.1 Environmental hygiene

4.1.1 Protection of watershed and perimeter

A hydrogeologist should determine the watershed and the perimeter (area surrounding the water's point of origin) that can be sources of contamination. These critical areas should be protected as much as possible.

4.1.2 Protective measures

All possible precautions should be taken within the protected perimeter to avoid any pollution of, or external influence on, the quality of the ground water. Preventive measures should be taken for disposal of liquid, solid or gaseous waste that could pollute the ground water. Disposal of pollutants such as microorganisms, fertilizers, hydrocarbons, detergents, pesticides, phenolic compounds, toxic metals, radioactive substances and other soluble organic and inorganic substances should be controlled. Wells should not be in the path of potential sources of underground contamination, such as sewers, septic tanks, industrial waste ponds, buried or above-ground gas or chemical tanks, pipelines and solid waste disposal sites.

4.2 HYGIENIC PRODUCTION OF WATER SUPPLIES

4.2.1 Protection of ground water supplies

4.2.1.1 *Criteria for ground water supplies*

It is not easy to distinguish between protected and unprotected ground water. Ground water supplies should be tested regularly for constancy of biological (including microbial), chemical, physical and where necessary, radiological characteristics. The frequency of testing is determined by the hydrogeological evaluation and historical constancy pattern of a particular water supply.

If abnormal contamination is detected, and the chosen corrective action is ineffective, production should cease temporarily until the water quality has returned to normal. The underground supply, from which the water is collected, should be approved by an official authority having jurisdiction or by a third party with expertise for approving such underground supplies.

4.2.2 Protection of surface water supplies

Surface waters intended for bottling should be protected from contamination to the fullest extent possible even when treatments follow. Surface waters may be highly variable, so supplies should be tested frequently.

4.2.2.1 Criteria for surface water supplies

Stringency in determining which surface waters are suitable for bottling should be the rule, even when treatment (s) is foreseen.

4.3 HANDLING, STORAGE AND TRANSPORT OF WATER INTENDED FOR BOTTLING

4.3.1 Hygienic collection of ground water

4.3.1.1 Extraction at point of origin

The extraction of water intended for bottling should be conducted in such a manner as to prevent other than the intended water from entering the extraction device. The extraction of water intended for bottling should also be conducted in a hygienic manner to prevent any contamination.

4.3.1.2 Protection of the extraction area

The immediate surroundings of the extraction area should be protected by limiting access to authorized persons only. Wellheads and spring outflows should be protected by a suitable structure to prevent entry by unauthorized individuals, pests, dust and other sources of contamination such as extraneous matter, drainage, floodwaters and in

filtration water.

4.3.1.3 Maintenance of extraction facilities

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 ground water. Wells should be disinfected following construction and development of new wells nearby, pump repair or replacement, any well maintenance, detection of coliform organisms, pathogens, or high plate counts in the water, and whenever biological growth inhibits proper operation. Water collection chambers should be disinfected within a reasonable time before use. Extraction devices such as those used for bore holes should be constructed and maintained in a manner that avoids contamination and minimizes hazards to human health.

4.3.2 Storage and transport of water intended for bottling

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.

4.3.2.1 Requirements

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

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

4.3.2.2 Use and maintenance

Conveyances and bulk containers for transporting water intended for bottling should be kept in an appropriate state of cleanliness, repair and condition. Containers and conveyances, particularly in bulk transport, should preferably be used only for transporting water intended for bottling.

5. ESTABLISHMENT : DESIGN AND FACILITIES

These guidelines are supplemental to those set forth in Clause 5 of **SLS 143**.

5.1 PREMISES AND ROOMS

In those areas of the processing establishment where containers are exposed to the external environment (i.e. on the loading dock), especially prior to filling and sealing, some specific preventive measures should be incorporated into the facility's design to avoid contamination of the containers used for production of bottled water.

5.2 FACILITIES

5.2.1 Water supply not intended for bottling

This section pertains to water used for cleaning and disinfection purposes; not for bottled water. For cleaning and disinfection purposes an ample supply of potable water not intended for bottling under adequate pressure and of suitable temperature should be available with adequate facilities for its storage, where necessary, and distribution, and with adequate protection against contamination.

Water not intended for bottling should be carried in completely separate lines from water intended for bottling. These lines should be identified, preferably by different colors. There must be no cross connections. Water not intended for bottling may be potable or not potable (used for steam production or refrigeration).

6. ESTABLISHMENT : CONTROL OF OPERATION

These guidelines are supplemental to those set forth in Clause 6 of **SLS 143**.

6.1 CONTROL OF FOOD HAZARDS

Water is an excellent vehicle for carrying substances in soluble, dispersed, or emulsified form. Steps must be taken at all stages of processing to ensure that contamination of water intended for bottling does not occur.

6.1.1 Treatment of waters intended for bottling

6.1.1.1 Water obtained from public water supplies

Waters, from public drinking water systems, intended for bottling should meet all the requirements specified in **SLS 614 : Part 1** and **SLS 614 : Part 2**.

6.1.1.2 Water obtained from surface and underground sources

Waters, from untreated surface waters intended for bottling should be of a quality (i.e. microbiological, chemical, physical, radiological), such that treatment is not necessary or that treatment (including multiple barrier treatments such as combination of filtration, chemical disinfection, etc.) of that water during processing results in finished bottled drinking water products that are safe and of suitable quality for consumption. Generally, the higher the quality of the water intended for bottling, the less treatment is required to produce safe and wholesome bottled drinking water products.

A hazard analysis which will be based on a HACCP methodology (see **SLS 1173**) will be used to determine whether treatment is necessary and, if it is necessary, the type and degree of treatment. Waters originating from protected underground supplies are less likely to require treatment than waters originating from surface supplies or unprotected underground supplies.

Treatment of waters intended for bottling, if necessary, to reduce, remove or prevent growth of microorganisms may include the application of chemical process (such as chlorination, ozonation, carbonation) and physical agents or process (such as high heat, ultraviolet radiation, filtration). These treatments can be used singly or in combination as multiple barriers. Treatments vary in their effectiveness against specific organisms. Bottled waters produced with the use of a multiple barrier treatment technique will be less likely to contain microorganisms of public health concern.

Treatments to remove or reduce chemical substances, if necessary, may include particulate (mechanical) filtration such as achieved with surface filters (e.g pleated membrane filters) or depth filters (e.g sand or compressed fiber (cartridge) filters), activated carbon filtration, demineralization (deionization, water softening, reverse osmosis, nano- filtration), and aeration. These treatments for chemicals may not adequately reduce or remove microorganisms and likewise, treatments for microorganisms may not adequately reduce or remove chemicals, and particulate matters.

All treatments of water intended for bottling should be carried out under controlled conditions to avoid any type of contamination, including the formation of toxic by – products and the presence of residues of water treatment chemicals in amounts that raise health concerns in accordance with **SLS 614 : Part 1** and **SLS 614 : Part 2**.

6.2 PACKAGING

6.2.1 Washing and sanitizing of disposable containers

Disposable containers are generally ready for use without washing and sanitizing. Determine if this is the case, if not, treat as carefully as reusable containers.

6.2.2 Washing and sanitizing of reusable containers

The washing and sanitizing of reusable containers for bottled drinking water should be conducted in an enclosed area and positioned within the processing plant so as to minimize post-sanitizing contamination of containers before the filling and sealing of containers.

6.2.3 Filling and sealing of containers

Bottling operations (i.e filling and sealing of containers) should be conducted in an enclosed area under positive air pressure. Another method of conducting bottling operations is to contain them in an enclosed area separate from other operations of the processing plant to protect against contamination. Dust, dirt, microorganisms and excessive moisture in the air should be controlled and monitored.

6.2.4 Product containers and closures

The containers intended for bottling drinking waters should be used exclusively for that purpose. Reusable containers should not have been used for any purpose that may lead to contamination of the product and should be individually inspected for suitability. New product containers should be inspected if and as appropriate. Product containers made of plastic materials should not leach any substance from the plastic into the product at a level that may pose a health hazard, i.e they should be non-toxic.

Closures are generally supplied in a ready to use state and should be tamper resistant; they are not reusable.

7 ESTABLISMENT : MAINTENANCE AND SANITATION

Maintenance and sanitation practices shall conform to the requirements laid down in Clause 7 of **SLS 143**.

8 ESTABLISHMENT : PERSONAL HYGIENE

Personal hygiene shall conform to the requirements specified under Clause 8 of **SLS 143**.

9 TRANSPORTATION OF BOTTLED WATER

Transportation conditions shall conform to the requirements specified under Clause 9 of **SLS 143**.

10 PRODUCT INFORMATION AND CONSUMER AWARENESS

Product information and consumer awareness shall conform to the requirements laid down in Clause 10 of **SLS 143**.

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SRI LANKA STANDARDS INSTITUTION

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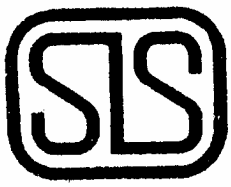

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