

SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF BOTTLED WATER

1. GENERAL

1.1 Application and Use

Pursuant to Clause 3 of R3400, General Scheme Rules for the Certification of Food Products (hereinafter 'General Rules'), the present Specific Scheme Rules for the Certification of Bottled Water (hereinafter "Specific Rules") describe the specific certification scheme for bottled and packaged water intended for human consumption.

The General Rules always prevail over the Specific Rules in case of any inconsistency.

1.2 Scope

Technical Cluster	Product Category	Products
Food	Bottled/Packaged Water	Table water Mineral water Natural mineral water Still water (non-carbonated) Sparkling water (carbonated) Spring water

1.3 Scheme Type

This Bottled Water Scheme is operated in accordance with ISO 17067:2013 Scheme Type 5. This scheme comprises the following elements

	PROCESS STEP	ACTIVITIES
1	Pre-certification	<ul style="list-style-type: none"> — Application — Application review, including applicable standard, test requirements, test facility options — Contract/certification Agreement — Audit programme (scheme of inspections and testing, frequency of audits, etc.) — Determining the Audit Time — Considerations for multi-site organizations applicant requirements — Consideration of multiple product standards applicant requirements

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2	Planning Audits	<ul style="list-style-type: none"> — Audit scheduling — Audit team appointment — Audit plan
3	Initial Certification	<ul style="list-style-type: none"> — Initial Factory Audit — Product Evaluation — Submission of corrective-action plan, if applicable — Follow-up and Close out of major non-conformities, if applicable
4	Review	<ul style="list-style-type: none"> — Review of application documents, factory audit report, product evaluation results
5	Decision	Decisions for <ul style="list-style-type: none"> — granting or refusing certification; — expanding or reducing the scope of certification; — suspending or restoring certification; and — withdrawing certification or renewing certification.
6	Maintaining Certification	<ul style="list-style-type: none"> — Surveillance activities — Recertification — Special audits — Suspension, Withdrawing or Reducing the scope of certification — Management of Certificates and Marks of Conformity

2. DEFINITIONS

The definitions in section 2 of R3400 General Scheme Rules for the Certification of Food and those in ZS 388:2000 shall apply.

3. REFERENCE STANDARDS/NORMATIVE REFERENCES

The documents listed below form the basis for certification of bottled/package water:

3.1 Rules Documents

R3400 General Scheme Rules for the Certification of Food Products
R3400-1 Specific Scheme Rules for the Certification of Bottled/Package Water

3.2 Standards

ZS 388: 2000 Bottled Drinking Water Specification

3.3 Statutory and Regulatory Requirements

Food Safety Act No. 7, 2019
Metrology Act No. 6, 2017

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3.4 Additional Codes/Standards/Specifications

CODEX STAN 192-1995, Rev. 3-2001 General Standard for Food Additives

ZS 033: Part 1 2015	Labelling of pre-packaged foods-code of practice. Part 1: General guidelines
ZS 033: Part 2 2015	Labelling of pre-packaged foods - code of practice Part 2: Guidelines for date marking
ZS 033: Part 3 2016	Labelling of pre-packaged foods - code of practice Part 3: Guidelines for nutrition labelling
ZS 033: Part 4 2015	Labelling of pre-packaged foods-code of practice. Part 4: Guidelines on claims
ZS 033: Part 5 2016	Labelling of pre-packaged foods - code of practice. Part 05: guidelines for labelling of non-retail containers of food

4.0 THE MANUFACTURER'S FACTORY PRODUCTION CONTROL

These requirements are supplemental to those set forth in Section 4 of R3400 General Scheme Rules for the Certification of Food.

4.1 Technical Documentation

The following technical documentation shall be available at the manufacturer's facility for inspection:

- a) Water resource characteristics: type of water, name of source, typical composition
- b) Process description (process steps with key operational parameters): water treatment, bottle washing process, filling conditions)
- c) Finished product characteristics that shall be defined as often as possible with target, acceptable limits and rejection limits:
 - microbiological standards
 - physical-chemical standards (e.g., pH, conductivity or total dissolved solids (TDS), carbon dioxide (CO₂) level for sparkling waters, mineral composition, organic chemicals composition)
 - packaging parameters (e.g., torque standards, filling levels)
 - sensorial characteristics
- d) Packaging description (primary, secondary, tertiary packaging)
- e) Shelf-life definition (e.g., Best Before Date definition)
- f) Batch definition and coding rules
- g) Specific handling, storage and transportation requirements
- h) Control plans (or at least reference to the applicable Control Plan)

4.1 Source Water Testing

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Ground water supplies shall be tested regularly for constancy of biological (including microbial), chemical, physical and, where necessary, radiological characteristics. If contamination is detected, production of bottled water shall cease until the water characteristics have returned to established parameters.

Source water shall be tested at a minimum of twice a year. Table 1 below shows parameters to be tested.

Table 1 Physical, Chemical and Microbiological Limits

Parameter	Maximum Limit	Frequency
Colour	Colourless	Every 6 months
Odour	Unobjectionable	Every 6 months
pH	6.5-8.0	Every 6 months
Electrical conductivity	1500	Every 6 months
Hardness (total) as Calcium Carbonate mg/L	500	Every 6 months
Dissolved Solids (total) mg/L	1000	Every 6 months
Aluminium mg/L	0.2	Every 6 months
Ammonia mg/L	0.5	Every 6 months
Arsenic mg/L	0.01	Every 6 months
Barium mg/L	0.7	Every 6 months
Cadmium	0.003	Every 6 months
Calcium mg/L	200	Every 6 months
Chloride mg/L	250	Every 6 months
Chromium mg/L	0.05	Every 6 months
Cobalt mg/L	0.5	Every 6 months
Copper mg/L	1.0	Every 6 months
Cyanide mg/L	0.01	Every 6 months
Fluoride mg/L	1.5	Every 6 months
Iron mg/L	0.3	Every 6 months
Lead mg/L	0.01	Every 6 months
Magnesium mg/L	150	Every 6 months
Manganese mg/L	0.1	Every 6 months
Mercury mg/L	0.001	Every 6 months
Nitrates mg/L	10	Every 6 months
Nitrites mg/L	1.0	Every 6 months
Potassium mg/L	12	Every 6 months
Selenium mg/L	0.01	Every 6 months
Silver mg/L	0.05	Every 6 months
Sodium mg/L	200	Every 6 months
Sulphates mg/L	400	Every 6 months
Zinc mg/L	3	Every 6 months
Pesticides, PCBs and other poisonous substances	Not to be detected	Every 6 months
Organochlorides	Not to be detected	Every 6 months

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Organophosphates	Not to be detected	Every 6 months
Total Coliforms cfu/ml	Not to be detected	Every 6 months
Faecal coliforms cfu/ml	Not to be detected	Every 6 months

cfu/ml - Colony forming units per millilitre

4.3 Water Extraction

4.3.1 At point of origin

The extraction or collection of water intended for bottling shall be conducted in such a manner as to prevent other than the intended water from entering the extraction or collection device.

The extraction or collection of water intended for bottling shall also be conducted in a hygienic manner to prevent any contamination. Where sampling points are necessary, they shall be designed and operated to prevent any contamination of the water.

4.3.2 Protection of the area of origin

The immediate surroundings of the extraction area shall be protected by limiting access to only authorized persons. Wellheads and spring outflows shall 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 infiltration water.

4.3.3 Maintenance of extraction or collection facilities

Methods and procedures for maintaining the extraction facilities shall be hygienic. These extraction facilities shall not be a potential hazard to humans or a source of contamination for the water. Wells shall be properly disinfected following construction and development of new wells nearby, after pump repair or replacement, or any well maintenance activity such as testing for and finding indicator organisms, pathogens, or abnormal plate counts in the water, and whenever biological growth inhibits proper operation. Water collection chambers shall be disinfected within a reasonable time before use. Extraction devices such as those used for bore holes shall be constructed and maintained in a manner that avoids contamination of the water and minimizes hazards to human health.

4.4 Control Plans

Product monitoring shall be operated through monitoring plans. These analyses can be either operated in-house or externally. Control plans shall include, at a minimum:

- a) product and process specifications to be monitored,
- b) frequency of monitoring,
- c) target, minimum and maximum limits, (tolerances),
- d) person/s responsible for product monitoring,
- e) person/s responsible for reviewing monitoring results,
- f) corrective actions when specification limits are breached.

4.5 Finished Product Testing

Tests on final products shall be conducted as per requirements in Table 2.

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Table 2 Physical, Chemical and Microbiological Limits

Parameter	Maximum Limit	Frequency
Colour	Colorless	Per batch
pH	6.0-8.5	Per batch
Electrical conductivity	1500	Per batch
Total Dissolved Solids mg/L	800	Per batch
Turbidity NTU	5	Per batch
Nitrates mg/L	45	Once per month
Calcium mg/L	200	Once per month
Potassium mg/L	12	Once per month
Sodium mg/L	200	Once per month
Magnesium mg/L	30	Once per month
Iron mg/L	0.3	Every 6 months
Cadmium mg/L	0.003	Every 6 months
Chromium mg/L	0.05	Every 6 months
Manganese mg/L	0.1	Every 6 months
Zinc mg/L	3.0	Every 6 months
Lead mg/L	0.01	Every 6 months
Copper mg/L	2.0	Every 6 months
Total Coliforms cfu/ml	Not to be detected	Per batch
Faecal coliforms cfu/ml	Not to be detected	Per batch

cfu/ml - Colony forming units per millilitre

5.0 THE CERTIFICATION PROCESS

These requirements are supplemental to those set forth in Section 5 to 11 of R3400 General Scheme Rules for the Certification of Food Products.

5.1 Sampling and Testing for Granting Certification

5.1.1 Sampling

If the sample passes in factory testing, samples of packaged drinking water shall be drawn during Factory Audit and sent for complete testing for all requirements of the Zambian Standard ZS 388:2000. The following details shall be indicated on the sample details form:

- Sample Description:
- Sample Identification:
- Sample source:
- Date sampled:
- Sampled By:
- Audit location, if applicable:
- Date of Audit, if applicable:
- Name of testing Facility

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The sample size for packaged drinking water to be sent to the third-party laboratory for testing is as Table 3 below:

Table 3 Sample Sizes to be Collecting for Granting Certification

Capacity of the container (SKU)	Number of bottles	Description
330ml	6	2- Micro, 2 – Chemical and 2 - Retention
500ml	3	1- Micro, 1 – Chemical and 1 - Retention
750ml	3	1- Micro, 1 – Chemical and 1 - Retention
1L	3	1- Micro, 1 – Chemical and 1 - Retention
18.9L	3	1- Micro, 1 – Chemical and 1 - Retention

NOTE: samples must be drawn from the same batch.

5.1.2 Testing

The following tests shall be carried out by a Laboratory that meets the relevant requirements of ISO/IEC 17025. Bottled drinking water shall conform to the requirements in Table 4 below:

Table 4 Characteristics to be Tested for Granting of Certification

Parameter	Units	Specifications ZS 388:2000
Total Coliform @36°C	Cfu/100ml	Absent
Faecal coliform @44.5°C	Cfu/100ml	Absent
Total Viable Count @36 °C	Cfu/1ml	10 max
Calcium	mg/L	200 max
Potassium	mg/L	12 max
Magnesium	mg/L	30 max
Sodium	mg/L	200 max
Cadmium	mg/L	0.003 max
Chromium	mg/L	0.05 max
Copper	mg/L	2.0 max
Iron	mg/L	0.3 max
Manganese	mg/L	0.1 max
Lead	mg/L	0.01 max
Zinc	mg/L	3.0 max
pH	-	6.0 – 8.5
TDS	mg/L	800 max
Electrical Conductivity	µS/cm	1500 max
Turbidity	NTU	5 max
Nitrates	mg/L	45 max
Total Suspended Solids	mg/L	5 max

cfu/ml - Colony forming units per millilitre

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6.0 CHANGES TO CERTIFICATION AND COMMUNICATION OF CHANGES

These requirements set forth in Section 12 of R3400 General Scheme Rules for the Certification of Food Products.

7.0 TRANSFERS OF ACCREDITED CERTIFICATES

These requirements set forth in Section 14 of R3400 General Scheme Rules for the Certification of Food Products.