

SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF SOFT DRINKS

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 Soft Drinks (hereinafter "Specific Rules") describe the specific certification scheme for soft drinks 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	Non-Alcoholic Beverages	<ol style="list-style-type: none"> 1. Carbonated Soft Drinks 2. Non-Carbonated Soft Drinks 3. Fruit Flavoured Drinks 4. Energy Drinks

1.3 Scheme Type

This Soft Drinks 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

SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF SOFT DRINKS

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 203:2012, ZS 554: 2011 and ZS 1134:2018 shall apply.

3. REFERENCE STANDARDS/NORMATIVE REFERENCES

The documents listed below form the basis for certification of soft drinks:

3.1 Rules Documents

R3400 General Scheme Rules for the Certification of Food Products
R3400-2 Specific Scheme Rules for the Certification of Soft Drinks

3.2 Standards

ZS 203: 2012 The manufacture of soft drinks and soft drink concentrates specifications
ZS 1134:2018 Energy drinks specifications
ZS 554: 2011 Fruit flavored drinks –Specifications

3.3 Statutory and Regulatory Requirements

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

SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF SOFT DRINKS

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: Name of source, typical composition
- b) Concentrates and flavours: Type, country of origin, typical composition
- c) Process description (process steps with key operational parameters): Water treatment, concentrates mixing, bottle washing process, pasteurization, 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), Titratable Acidity (TA), carbon dioxide (CO₂) level for sparkling soft drinks, 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)

SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF SOFT DRINKS

4.2 Source Water Testing

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 soft drinks 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

SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF SOFT DRINKS

Organochlorides	Not to be detected	Every 6 months
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 soft drinks manufacturing shall 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

Degrees Brix for soft drinks (Non critical specification as it varies from product to product) should have a minimum reading of 30° Brix and 10° Brix for concentrated products and ready to drink products respectively when measured at 20°C in accordance with the methods of test ZS 554:2011 - Fruit Flavoured Drinks – Specification and ZS

SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF SOFT DRINKS

203:2012 the manufacture of soft drinks and soft drink concentrates. Carbon dioxide shall have a purity of at least 99.5% (m/m). Any sulphur dioxide shall in each case, not exceed 0.002 mg/l under standard conditions, and the carbon dioxide shall be free from other noxious gases, shall be Colourless and shall have a normal taste and odour when dissolved in water. The moisture content shall not exceed 0.005% (m/m).

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

Table 2 Physical, Chemical and Microbiological Limits

Parameter	Limit (max)	Frequency
Total viable counts @30°C (CSD)	100	Per batch
Total viable counts @30°C (FFD)	10	Per batch
Faecal Coliforms @ 42°C	absent	Per batch
E. coli per 100 ml @ 44°C	absent	Per batch
Salmonella @ 36°C & 42°C	absent	Per batch
Staphylococcus aureas @ 36°C	absent	Per batch
Yeast and mould counts, per ml, max	2	Per batch
Arsenic As, ppm	0.2	Every 6 months
Lead as pb, ppm	0.3	Every 6 months
Copper as Cu, ppm	1.5	Every 6 months
Mercury as Hg, ppm	0.05	Every 6 months
Zinc as Zn, ppm	5.0	Every 6 months
Tin as Sn, ppm	250	Every 6 months
Taurine g/ml	0.4	Per batch
Caffeine g/ml	0.03	Per batch
pH	-	Per batch
Brix	-	Per batch

cfu/ml - Colony forming units per millilitre

NOTE 1: TVC is an indicator of quality, not safety, and cannot directly contribute towards a safety assessment of food. In addition, TVCs can provide useful information about the general quality and remaining shelf life of the food in question, however they are not deemed a priority in a risk-based analysis (Centre for Food Safety Food and Environmental Hygiene Department – Microbiological guideline for food - August 2014 edition)

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

SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF SOFT DRINKS

If the sample passes in factory testing, samples of soft drinks shall be drawn during Factory Audit and sent for complete testing for all requirements of the Zambian Standard ZS 203:2012 and ZS 1134: 2018. 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

The sample size for soft drinks to be sent to the third-party laboratory for testing is as Table 3 below:

Table 3 Sample Sizes to be Collected for Granting Certification

Capacity of the container (SKU)	Number of bottles	Description
300ml	6	2- Micro, 2 – Chemical and 2 - Retention
500ml	3	1- Micro, 1 – Chemical and 1 - Retention
1L	3	1- Micro, 1 – Chemical and 1 - Retention
2L	3	1- Micro, 1 – Chemical and 1 - Retention

NOTE 2: 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. Soft drinks shall conform to the requirements in Table 4 below:

Table 4 Characteristics to be Tested for Granting of Certification

Parameter	Specifications ZS203:2012 and ZS 1134:2018
Total viable counts @30°C (CSD)	100
Total viable counts @30°C (FFD)	10
Faecal Coliforms @ 42°C	absent
E. coli per 100 ml @ 44°C	absent
Salmonella @ 36°C & 42°C	absent
Staphylococcus aureas @ 36°C	absent
Yeast and mould counts, per ml, max	2
Arsenic As, ppm	0.2
Lead as pb, ppm	0.3
Copper as Cu, ppm	1.5
Mercury as Hg, ppm	0.05
Zinc as Zn, ppm	5.0
Tin as Sn, ppm	250
Taurine g/ml	0.4
Caffeine g/ml	0.03

SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF SOFT DRINKS

pH	-
Brix	-

cfu/ml - Colony forming units per millilitre

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.