

Energy drinks — Specification

Part 1:

Ready-to-drink energy drinks

DKS 1054-1:2019

TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Kenyatta University
Coca Cola East Africa Ltd.
Kenya Industrial Research and Development Institute (KIRDI)
Government Chemist's Department
Kenyatta National Hospital — Department of Nutrition
Consumer Information Network
Ministry of Health — Primary Health Care Department
Kenya Bureau of Standards — Secretariat

REVISION OF KENYA STANDARDS

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Part 1:

Ready-to-drink energy drinks

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Forward

This Kenya Standard was prepared by the Water Based Flavoured Drinks and Ices Technical Committee under the guidance of Standards Project Committee and it is in accordance with the procedures of Kenya Bureau of Standards.

This Kenya standard stipulates the essential compositional, quality, microbiological, contaminants and labeling requirements for ready to drink energy drinks defined in the standard.

This standard has been developed because the importation, local production and consumption of energy drinks by Kenyans is high and continues to rise, and thus there is need to regulate the industry and ensure quality and safety of the product so as to guarantee health and safety of the consumers.

This standard cancels and replaces KS 1054-1:2008, Energy drinks — Specification Part 1: Ready-to-drink energy drinks which has been technically revised.

During the preparation of this standard, reference was made to the following document;

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Acknowledgement is hereby made for their assistance derived from this source.

Energy drinks — Specification

Part 1:

Ready-to-drink energy drinks

1 Scope

This Kenya Standard specifies the requirements for ready-to-drink energy drinks.

This standard does not apply to drinks meant for special dietary uses, convalescents and inactive people. It also does not apply to cereal malt based energy drinks, electrolytic and sports drinks.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

KS 432, *Methods of test for fruit juices and similar products*

ISO 4833-1 *specifies a horizontal method for enumeration of microorganisms that are able to grow and form colonies in a solid medium after aerobic incubation at 30 °C*

ISO 4833-2 *specifies a horizontal method for enumeration of microorganisms that are able to grow and form colonies on the surface of a solid medium after aerobic incubation at 30 °C*

ISO 7251 *gives general guidelines for the detection and enumeration of presumptive Escherichia coli by means of the liquid-medium culture technique and calculation of the most probable number (MPN) after incubation at 37 °C, then at 44 °C*

ISO 6579-1 ISO 6579-1:2017 *specifies a horizontal method for the detection of Salmonella*

ISO 6888-1 *specifies a horizontal method for the enumeration of coagulase-positive staphylococci in products intended for human consumption or feeding of animals, by counting of colonies obtained on a solid medium (Baird-Parker medium) after aerobic incubation at 35 °C or 37 °C*

ISO 21527-1 *specifies a horizontal method for the enumeration of viable yeasts and moulds in products, intended for human consumption or feeding of animals, having a water activity greater than 0,95 [eggs, meat, dairy products (except milk powder), fruits, vegetables, fresh pastes, etc.], by means of the colony count technique at 25 °C plus or minus 1 °C*

ISO 2173 *specifies a refractometric method for the determination of the soluble solids in fruit and vegetable products*

BS EN 1132

KS EAS 29 Annex A

AOAC-994.11 2016

AOAC-979.08 2016

KS 319-1:2006

AOAC 957.17 2016

AOAC 981.15 2016

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AOAC 961.14 2016

KS EAS 38, *Labelling of pre-packaged foods — General requirements*

KS EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

KS 140, *Methods of test for processed fruits and vegetables*

KS EAS 803, *specifies requirements for the nutrition labelling of foods*

KS EAS 804, *specifies general requirements for claims made on a food irrespective of whether or not the food is covered by an individual East African Standard*

KS EAS 805, *specifies requirements for the use of nutrition and health claims in food labelling and in advertising*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

energy drink

is a type of drink presented as "energy", but distinct from food energy. They may or may not be caffeinated and/or carbonated and may also contain sugar or other sweeteners, herbal extracts, taurine, amino acids and other permitted food additives.

NOTE Food energy is energy derived from carbohydrates, fats, proteins and other organic compounds.

3.2

glucose

is refined D-glucose, obtained by controlled hydrolysis of starch containing materials

3.3

glucose-based energy drinks

the aqueous solution of glucose mixed with approved food additives

3.4

caffeine

all caffeine present from whatever source in a formulated caffeinated beverage

3.5

formulated caffeinated beverage

is energy drink which contains caffeine and may contain amino acids, vitamins, sugars, other sweeteners and other substances, including other foods for the purpose of enhancing energy and mental performance

5 Requirements

5.1 General requirements

5.1.1 Ready-to-drink energy drinks shall be free from contaminants such as dirt, extraneous or suspended matter.

5.1.2 (Ready-to-drink energy drinks shall be non-alcoholic carbonated or non-carbonated drink containing carbohydrates derivative(s) dissolved in potable water, with or without the addition of the optional ingredients provided for in this standard with a minimum energy density of 190 kJ and a maximum of 325 kJ/100 mL.)

Note 1 Kilojoule (kJ) is equivalent to 0.239 calories (kcal).

Note 2 For reduced energy drinks, the minimum density of 95kJ and a maximum of 162.5 kJ/100 ml as per the requirements of CAP 254 laws of Kenya.

5.1.3 Formulated caffeinated beverage/energy drink in addition to complying with 5.1.2 above, shall contain no less than 14.5 mg/100ml and no more than 32 mg/100ml of caffeine.

5.1.4 Ready-to-drink energy drinks shall have acceptable flavour and odour and shall be free from rancid, musty or any other foreign taste characteristic of spoilage.

5.2 Types of energy drinks

Energy drinks shall be either

- a) glucose based energy drinks
- b) formulated caffeinated energy drinks with Sugar
- c) formulated caffeinated energy drinks sugar free

5.3 Chemical requirements

5.3.1 Ready-to-drink energy drinks shall comply with the chemical requirements given in Table 1 when tested in accordance with methods listed therein.

Table 1 — Chemical requirements for ready-to-drink energy drinks

S/N	Characteristic	Requirement	Test method
i.	Degree brix (°B) at 20 °C ^a	10.0 – 20.0	ISO 2173
ii.	pH	2.6 – 4.0	BSEN 1132
iii.	Carbon dioxide, ^b gas volume min	1	Annex A
iv.	Sulphur dioxide mg/kg, max.	100.0	Pearson's –Tanner method
v.	(Reducing sugar contents (dextrose equivalent), % m/m, min.) ^c	20	KS 319-1
vi.	Benzoic acid, mg/kg, max.	200	AOAC-994.11
vii.	Caffeine, ^d mg/100	14.5-32.0	AOAC-979.08
^a does not apply to sugar free or reduced sugar energy drinks. ^b Applies to the carbonated energy drinks. ^c Applies to glucose based energy drinks. ^d Applies to caffeinated energy drinks.			

5.3.2 Optional ingredients specified in Table 2 may be used in ready-to-drink energy drinks provided that the maximum amounts stipulated shall not be exceeded.

Table 2 — Optional ingredients for ready-to-drink energy drinks

S/N	Substance	Amount, 100 ml		Test method
		Min.	Max.	
i.	Thiamine		8.0 mg	AOAC 957.17
ii.	Riboflavin		4.0 mg	AOAC 981.15
iii.	Niacin		8.0 mg	AOAC 961.14
iv.	Pyridoxine (Vitamin B ₆)		2.0 mg	
v.	Vitamin B ₁₂		2 µg	
vi.	Pantothenic acid		2.0 mg	
vii.	Taurine		400.0 mg	

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viii.	Glucuronolactone		240.0 mg	
ix.	Inisitol		20.0 mg	

6 Food additives

Ready-to-drink energy drinks may contain only permitted additives in accordance with CODEX STAN 192.

7 Hygiene

7.1 Ready-to-drink energy drinks shall be prepared and packaged in the premises built and maintained under hygienic conditions in accordance with the Public Health Act, Cap. 242, the Food, Drugs and Chemical Substances Act, Cap. 254 of the Laws of Kenya and KSEAS 39.

7.2 Ready-to-drink energy drinks shall comply with the microbiological limits given in Table 3 When tested in accordance with the methods specified therein.

Table 3 — Microbiological limits for ready-to-drink energy drinks

S/N	Characteristic	Limit	Test method
i.	Total viable counts per ml, max.	100	ISO 4833-1
ii.	<i>E.coli</i> cfu/ml	Not detected	ISO 7251
iii.	Salmonella, per 25 ml	Shall be absent	ISO 6579-1
iv.	Coagulase Positive <i>Staphylococcus Aureus</i> , cfu/ml	Not detected	ISO 6888-1
v.	Yeast and moulds cfu/ml, max.	10	ISO 21527-1

8 Heavy metal contaminants

Ready-to-drink energy drinks shall comply with the contaminant limits specified in Table 4 when tested in accordance with methods specified therein.

Table 4 — Heavy metal contaminant limits for ready-to-drink energy drinks

S/N	Contaminant ppm, max.	Limit	Test method
i.	Lead	0.1	ISO 6633
ii.	Tin	150	ISO 2447
iii.	Arsenic	0.1	ISO 6634

9 Packaging and labelling

9.1 Packaging

9.1.1 Ready-to-drink energy drinks shall be packaged in containers of food grade material that will protect the product from chemical, physical and microbiological contaminations.

9.1.2 The container shall be tamper-evident.

9.1.3 The fill of the container shall be in accordance with the Weights and Measures Act, Cap. 513 of the Laws of Kenya.

9.2 Labelling

9.2.1 The labelling of ready-to-drink energy drinks shall comply with KS EAS 38, KS EAS 803, KS EAS 804, KS EAS 805. In addition, the following information shall be legibly and indelibly marked on the container. These requirements shall also apply to bulk packages:

- i) name of the product as defined in 5.2
- ii) brand name/ trade name;
- iii) name, location and physical address of the manufacturer;
- iv) country of origin;
- v) ingredients in descending order of proportions;
- vi) declaration of the nutritional information;
- vii) date of manufacture;
- viii) expiry date;
- ix) batch/ lot number;
- x) storage condition;
- xi) net volume (in metric units); and
- xii) recommended servings per day.

9.2.2 The following additional information shall also be included on the label of ready-to-drink energy drinks whose formulation includes caffeine:

- a) advisory statement to the effect that
 - i) the drink contains caffeine and
 - ii) the drink is not recommended for children, expectant/ breastfeeding women and individuals sensitive to caffeine.
- b) declarations of the average quantities, per serving size and per 100 ml of
 - i) caffeine expressed in milligrams, and
 - ii) the substances permitted as optional ingredients.

9.2.3 The quantities of vitamins present in the drink shall not be expressed as a portion or multiple of

- i) recommended dietary intakes or
- ii) estimated safe and adequate daily intakes of that vitamin.

9.2.4 where non-nutritive sweetener is used, the following words: "Contains non nutritive Sweetener for Special Dietary use only" shall be declared on the label.

Annex A
(normative)

Method of measuring gas volume

A.1 Principle

The method involves sniffting of the top gas. The pressure reading should drop to 2 psi, to remove the air before testing for carbon dioxide volume. In so doing correction of altitude as per table should be considered as pressure is affected by altitude.

The apparatus consists of pressure gauge having a hollow spike with holes in its side. The bottle is inserted from the side into the slot provided in the neck of the carbon dioxide tester and is secured in place by tightening with a threaded system. The pressure gauge is inserted until the needle point touches the crown cork. There is a snift valve on the gauge stem which is kept closed until the needle point of the pressure gauge is forced through the crown cork. The reading is noted on the gauge.

A.2 Procedure

Clamp the bottle in the frame of the gas volume tester. Pierce the crown cork but do not shake the bottle. Snift off the top gas quickly until the gauge reading drops to zero. Make certain to close the valve instantly the needle touches zero in the pressure gauge. Shake the bottle vigorously until the gauge gives the reading that additional shaking does not change. Record the pressure. Note the temperature and record. Obtain the volume of gas from pressure-temperature chart (Carbon dioxide chart)