



1 **EAST AFRICAN STANDARD**

---

2 **Packaged flavoured drinking water — Specification**

3 **EAST AFRICAN COMMUNITY**

---



4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21

### Copyright notice

This EAC document is copyright-protected by EAC. While the reproduction of this document by participants in the EAC standards development process is permitted without prior permission from EAC, neither this document nor any extract from it may be reproduced, stored or transmitted in any form for any other purpose without prior written permission from EAC.

Requests for permission to reproduce this document for the purpose of selling it should be addressed as shown below or to EAC's member body in the country of the requester:

© East African Community 2018 — All rights reserved  
East African Community  
P.O. Box 1096,  
Arusha  
Tanzania  
Tel: + 255 27 2162100  
Fax: + 255 27 2162190  
E-mail: eac@eachq.org  
Web: www.eac-quality.net

Reproduction for sales purposes may be subject to royalty payments or a licensing agreement. Violators may be prosecuted.

DEAS 941 for Public Commenting EAC/TC087

22	<b>Contents</b>		Page
23	<b>1</b>	<b>Scope</b> .....	1
24	<b>2</b>	<b>Field of application</b> .....	1
25	<b>3</b>	<b>Normative references</b> .....	1
26	<b>4</b>	<b>Terms and definitions</b> .....	5
27	<b>5</b>	<b>Requirements</b> .....	6
28	<b>5.1</b>	<b>General requirements</b> .....	6
29	<b>5.2</b>	<b>Hygienic conditions</b> .....	6
30	<b>5.3</b>	<b>Preservatives</b> .....	7
31	<b>5.4</b>	<b>Purified water process</b> .....	7
32	<b>5.6</b>	<b>Source of natural flavour concentrate or extract</b> .....	7
33	<b>5.7</b>	<b>Herbs, fruits or extracts parts of plant origin</b> .....	7
34	<b>5.9</b>	<b>Specific requirements</b> .....	8
35	<b>6</b>	<b>Hygiene</b> .....	10
36	<b>7</b>	<b>Packaging and labelling</b> .....	11
37	<b>7.1</b>	<b>Packaging</b> .....	11
38	<b>7.2</b>	<b>Weights and measures</b> .....	11
39	<b>7.3</b>	<b>Labelling</b> .....	11
40	<b>7.4</b>	<b>Labelling prohibitions</b> .....	12
41	<b>8</b>	<b>Parameters required for minimum monitoring</b> .....	12
42	<b>9</b>	<b>Sampling plan for Flavoured drinking water</b> .....	13
43			
44			

45 **Foreword**

46 Development of the East African Standards has been necessitated by the need for harmonizing requirements  
47 governing quality of products and services in the East African Community. It is envisaged that through  
48 harmonized standardization, trade barriers that are encountered when goods and services are exchanged  
49 within the Community will be removed.

50 The Community has established an East African Standards Committee (EASC) mandated to develop and  
51 issue East African Standards (EAS). The Committee is composed of representatives of the National  
52 Standards Bodies in Partner States, together with the representatives from the public and private sector  
53 organizations in the community.

54 East African Standards are developed through Technical Committees that are representative of key  
55 stakeholders including government, academia, consumer groups, private sector and other interested parties.  
56 Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the  
57 Partner States. The comments received are discussed and incorporated before finalization of standards, in  
58 accordance with the Principles and procedures for development of East African Standards.

59 East African Standards are subject to review, to keep pace with technological advances. Users of the East  
60 African Standards are therefore expected to ensure that they always have the latest versions of the standards  
61 they are implementing.

62 The committee responsible for this document is Technical Committee EASC/TC 081 Drinking water.

63 Attention is drawn to the possibility that some of the elements of this document may be subject of patent  
64 rights. EAC shall not be held responsible for identifying any or all such patent rights.

DEAS 941 for Public Commenting EASC/TC 081

## 65 Introduction

66 This standard has been developed because the importation, local production and consumption of flavoured  
67 drinking water by EAC Partner States is high and continues to rise, and thus there is need to regulate the  
68 industry and ensure quality and safety of the product so as to guarantee health and safety of the consumers

69 This standard covers requirements for sweetened flavoured drinking water, unsweetened flavoured drinking  
70 water, sparkled sweetened flavoured drinking water and sparkled unsweetened flavoured drinking water  
71 meant for drinking

72 This standard covers requirements for sweetened flavoured drinking water, unsweetened flavoured drinking  
73 water, sparkled sweetened flavoured drinking water and sparkled unsweetened flavoured drinking water  
74 meant for drinking

75 This standard lays down the minimum requirements which should be complied with in order to render the  
76 flavoured drinking water fit for drinking. Definitions and labelling requirements for flavoured drinking water  
77 have been incorporated in this standard. It is important that the consumer be protected from substandard  
78 products.

79



## 80 Packaged flavoured drinking water — Specification

### 81 1 Scope

82 This East Africa Standards specifies requirements, test methods and sampling methods for ready-to-drink  
83 flavoured drinking water.

### 84 2 Field of application

85 This standard applies to flavoured drinking water with extracts of herbs, fruits or extracts parts of plant origin  
86 and permitted flavours as per codex STAN 192.

### 87 3 Normative references

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

91 *EAS 13, Packaged natural mineral waters — Specification*

92 *EAS 153, Packaged drinking water — Specification*

93 *EAS 803, Nutrition labelling — Requirements*

94 *EAS 804, Claims on food — General requirements*

95 *EAS 805, Use of nutrition and health claims — Requirements*

96 *EAS 38, Labelling of prepackaged foods — Specification*

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

98 *ISO 4832, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of*  
99 *coliforms — Colony-count technique*

100 *ISO 5961, Water quality — Determination of cadmium by atomic absorption spectrometry*

101 *ISO 6222, Water quality — Enumeration of culturable microorganisms — Colony count by inoculation in*  
102 *nutrient agar culture media*

103 *ISO 6332, Water quality — Determination of iron - Spectrometric method using 1,10-phenanthroline*

104 *ISO 6333, Water quality — Determination of manganese — Formaldoxime spectrometric method*

105 *ISO 6461-2, Water quality — Detection and enumeration of the spores of sulphite-reducing anaerobes*  
106 *(clostridia) — Part 2: Method by membrane filtration*

107 *ISO 6703-1, Water quality — Determination of cyanide: total cyanide*



- 108 ISO 6777, *Water quality -- Determination of nitrite -- Molecular absorption spectrometric method*
- 109 ISO 19250, *Water quality — Determination of salmonella .*
- 110 ISO 6888-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of*  
111 *coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Technique using*  
112 *Baird-Parker agar medium*
- 113 ISO 7027-1, *Water quality — Determination of turbidity —Part 1: Quantitative methods*
- 114 ISO 7393-1, *Water quality — Determination of free chlorine and total chlorine — Part 1: Titrimetric method*  
115 *using N,N-diethyl-1,4phenylenediamine*
- 116 ISO 7393-2, *Water quality — Determination of free chlorine and total chlorine — Part 2: Colorimetric method*  
117 *using N,N-dialkyl-1,4phenylenediamine, for routine control purposes*
- 118 ISO 7393-3, *Water quality — Determination of free chlorine and total chlorine — Part 3: Iodometric titration*  
119 *method for the determination of total chlorine*
- 120 ISO 7887, *Water quality — Examination and determination of colour*
- 121 ISO 7890-3, *Water quality – Determination of nitrate – Part 3: Spectrometric method using sulfosalicylic acid*
- 122 ISO 7899-2, *Water quality — Detection and enumeration of intestinal enterococci — Part 2: Membrane*  
123 *filtration method*
- 124 ISO 7980, *Water quality — Determination of calcium and magnesium — Atomic absorption spectrometric*  
125 *method*
- 126
- 127 ISO 8165-1, *Water quality – Determination of selected monovalent phenols - Part 1: Gaschromatographic*  
128 *method after enrichment by extraction*
- 129 ISO 8165-2, *Water quality – Determination of selected monovalent phenols - Part 2: Method by derivatization*  
130 *and gas chromatography*
- 131 ISO 8288, *Water quality — Determination of cobalt, nickel, copper, zinc, cadmium and lead — Flame atomic*  
132 *absorption spectrometric methods*
- 133 ISO 9174, *Water quality — Determination of chromium — Atomic absorption spectrometric methods*
- 134 ISO 9297, *Water quality — Determination of chloride — Silver nitrate titration with chromate indicator (Mohr's*  
135 *method)*
- 136 ISO 9308-12014/Amd1:2016, *Water quality – Enumeration of Escherichia coli and coliform bacteria - Part 1:*  
137 *Membrane filtration method for waters with low bacterial background flora*
- 138 ISO 9377-2, *Water quality — Determination of hydrocarbon oil index — Part 2: Method using solvent*  
139 *extraction and gas chromatography*
- 140 ISO 9696, *Water quality – Gross alpha activity - Test method using thick source*
- 141 ISO 9697, *Water quality – Gross beta activity in non-saline water – Test method using thick source*
- 142 ISO 9964-1, *Water quality — Determination of sodium and potassium — Part 1: Determination of sodium by*  
143 *atomic absorption spectrometry*
- 144 ISO 9964-2, *Water quality – Determination of sodium and potassium – Part 2: Determination of potassium by*  
145 *atomic absorption spectrometry*

- 146 ISO 10304, *Water quality — Determination of dissolved anions by liquid chromatography of ions*
- 147 ISO 10359, *Water quality — Determination of fluoride*
- 148 ISO 10523, *Water quality — Determination of pH*
- 149 ISO 10530, *Water quality — Determination of dissolved sulfide — Photometric method using methylene blue*
- 150 ISO 10566, *Water quality — Determination of aluminium — Spectrometric method using pyrocatechol violet*
- 151 ISO 11423, *Water quality — Determination of benzene and some derivatives*
- 152 ISO 11732, *Water quality — Determination of ammonium nitrogen — Method by flow analysis (CFA and FIA)*  
153 *and spectrometric detection*
- 154 ISO 11885, *Water quality — Determination of selected elements by inductively coupled plasma optical*  
155 *emission spectrometry (ICP-OES)*
- 156 ISO 12846, *Water quality — Determination of mercury — Method using atomic absorption spectrometry (AAS)*  
157 *with and without enrichment*
- 158 ISO 15061, *Water quality — Determination of dissolved bromate — Method by liquid chromatography of ions*
- 159 ISO 15089, *Water quality — Guidelines for selective immunoassays for the determination of plant treatment*  
160 *and pesticide agents*
- 161 ISO 16265, *Water quality — Determination of the methylene blue active substances (MBAS) index -- Method*  
162 *using continuous flow analysis (CFA)*
- 163 ISO 16266, *Water quality — Detection and enumeration of Pseudomonas aeruginosa — Method by*  
164 *membrane filtration*
- 165 ISO 21567, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Shigella*  
166 *spp*
- 167 ISO 14402, *Water quality — Determination of phenol index by flow analysis (FIA and CFA)*
- 168 ISO/TS 21872-1, *Microbiology of food and animal stuffs — Horizontal method for the detection of potentially*  
169 *enteropathogenic vibrio spp. — Part 1: Detection of vibrio parahaemolyticus and vibrio cholera*
- 170 ISO 9963-2, *Water quality — Determination of alkalinity — Part 2: Determination of carbonate alkalinity*
- 171 ISO 9965, *Water quality — Determination of selenium — Atomic absorption spectrometric method (hydride*  
172 *technique)*
- 173 ISO 11969, *Water quality — Determination of arsenic — Atomic absorption spectrometric method (hydride*  
174 *technique)*
- 175 ISO 13877, *Soil quality — Determination of polynuclear aromatic hydrocarbons — Method using high -*  
176 *performance liquid chromatography*
- 177 ISO 15553 *Water quality — Isolation and identification of Cryptosporidium oocysts and Giardia cysts from*  
178 *water*
- 179 ASTM D 1246-55, *Standard Test Method for Bromide Ion in Water*
- 180 ASTM D 1976-12, *Standard Test Method for Elements in Water by Inductively-Coupled Argon Plasma Atomic*  
181 *Emission Spectroscopy*

182 *ASTM D 4128-06, Standard Guide for Identification and Quantitation of Organic Compounds in Water by*  
183 *Combined Gas Chromatography and Electron Impact Mass Spectrometry*

184 *ASTM D 4129-05, Standard Test Method for Total and Organic Carbon in Water by High Temperature*  
185 *Oxidation and by Coulometric Detection*

186 *ASTM D 5907, Standard test methods for filterable matter (total dissolved solids) and non-filterable matter*  
187 *(total suspended solids) in water*

188 *ASTM D5907-13, Standard test methods for filterable matter (total dissolved solids) and non-filterable matter*  
189 *(total suspended solids) in water*

190

DEAS 947 for Public Commenting EAC/TC087

191 **4 Terms and definitions**

192 For the purposes of this standard, the following terms and definitions shall apply.

193 **4.1**

194 **flavoured drinking water**

195 purified water containing extracts of herbs, fruits or parts of plant origin, permitted flavor /concentrates in  
196 minute traces, singly or in combination, intended for sale as a ready to drink for human consumption

197 **4.2**

198 **sweetened flavoured drinking water**

199 purified water containing extracts of herbs, fruits or extracts parts of plant origin, flavour /concentrate in minute  
200 traces with added permitted artificial nonnutritive sweeteners or sugars, singly or in combination, intended for  
201 sale as a ready to drink for human consumption

202 **4.3**

203 **artificial nonnutritive sweeteners**

204 substances that are used instead of sugars (i.e. sucrose, corn syrup, honey, agave nectar) to sweeten foods,  
205 beverages and other products, such as oral care products and certain medications and are having very low or  
206 zero calories or nutrients

207

208 **4.4**

209 **carbonated flavoured drinking water**

210

211 **4.4.1**

212 **naturally carbonated flavoured drinking water**

213 is a flavoured drinking water, which is naturally carbonated from source of the raw water without artificial  
214 carbonation

215 **4.4.2**

216 **non-carbonated flavoured drinking water**

217 is flavoured drinking water, which by nature, and after possible treatment as provided for in this standard, and  
218 after packaging, does not contain free carbon dioxide in excess of the amount necessary to keep the  
219 hydrogen carbonate salts present in the water dissolved

220

221 **4.4.3**

222 **artificially carbonated flavored drinking water**

223 is flavoured drinking water, and after possible treatment as provided for in this standard and before packaging  
224 has been made more effervescent by addition of carbon dioxide. This includes sparkling, carbon dioxide  
225 fortified and fizzling flavoured drinking water

226

227 **4.5**

228 **purified water**

229 water which conforms to standards prescribed for any drinking water standard

230

231 **4.6**

232 **flavour / concentrate/ extract**

233 any permitted extracts of herbs, fruits or extracts parts of plant origin

234

235 **4.7**

236 **natural flavours**

237 are flavour preparations and single substance respectively, acceptable for human consumption, obtained  
238 exclusively by physical processes from essential oil, oleoresin, essence or extractive, protein hydrolysate,  
239 distillate, or any product of roasting, heating or enzymolysis, which contains the flavouring constituents  
240 derived from a spice, fruit or fruit juice, vegetable or vegetable juice, edible yeast, herb, bark, bud, root, leaf or  
241 similar plant material, meat, seafood, poultry, eggs, dairy products, or fermentation products thereof, whose  
242 significant function in food is flavouring rather than nutritional and fit for human consumption.

- 243  
244 **4.8**  
245 **nature-identical flavouring substances**  
246 are substances chemically isolated from aromatic raw materials or obtained synthetically; they are chemically  
247 identical to substances present in natural products intended for human consumption, either processed or not  
248  
249 **4.9**  
250 **packaging material**  
251 any food grade containers such as cans, bottles, cartons, boxes, cases or wrapping and covering material  
252 such as foil, film, metal paper and wax paper
- 253 **4.10**  
254 **Food grade material**  
255 a material made of substances which are safe and suitable for their intended use and which will not impart any  
256 toxic substance or undesirable odour or flavour to the food product
- 257 **5 Requirements**
- 258 **5.1 General requirements**
- 259 **5.1.1 Types of flavoured drinking water**
- 260 — Carbonated sweetened, carbonated non sweetened  
261 — Non-carbonated Sweetened, Non-carbonated non sweetened
- 262 **5.2 Hygienic conditions**
- 263 Flavoured drinking water shall be processed in premises maintained in accordance with the requirements in  
264 Annex A of EAS 153 or Annex A of EAS 13.
- 265 **5.2.1 Source of water**
- 266 Source of water shall be free from any contamination, approved by the relevant water regulatory authorities  
267 and shall conform to the specific requirements of Annex A of EAS 153 or Annex A of EAS 13.
- 268 **5.2.2 Flavour s/concentrates/ extracts**
- 269 **5.2.2.1** Flavours /extracts shall be processed under the Good Manufacturing Practice (GMP) conditions  
270 **5.2.2.2** Flavours /extracts shall be procured with Certificate of Analysis.  
271 **5.2.2.3** Flavour /extracts shall be with batch number, date of manufacture, expiry and storage conditions.  
272 **5.2.2.4** Flavour/extracts shall comply with the requirements of CAC/GL 66
- 273 **5.2.3 Flavoured drinking water**
- 274 **5.2.3.1** Contents shall be safe for human consumption and health.  
275 **5.2.3.2** The product shall be free from abnormal odour, foreign matters, insects and part of them.  
276 **5.2.3.3** Preservatives used for concentrates, extracts shall be of food grade.

277 **5.3 Preservatives**

278 Preservatives may be added for one or more of the following purposes:

279 **5.3.1** Carry over food additives (preservative) approved by Joint Expert Committee for Food Additives  
280 (JEFCA) and or Codex Alimentarius Commission (CAC).

281 **5.3.2** To retain the flavour, concentrate and extract properties in good condition.

282 **5.3.4** To retain quality, stability and to enhance shelf life.

283 **5.3.5** To add or enhance taste to flavoured drinking water.

284 **5.3.6** To process flavoured drinking water, to retain properties during manufacture, packaging and  
285 transport.

286 **5.3.7** To provide essential constituents of flavoured drinking water; which complies with applicable  
287 standards of purity or quality in respect of flavour used.

288 **5.3.8** Preservative shall not be directly added to flavoured drinking water

289 **5.4 Purified water process**

290 Water used for flavoured drinking water may be produced by one or more of following process, reverse  
291 osmosis; activated alumina, multigranular sand filtration; activated carbon filtration; nano filtration; micron  
292 filtration; ozonator; and ultraviolet processing; source protection and monitoring, advanced water purifying  
293 technology may be used conforming to EAS 13 or EAS 153 or any drinking water standard.

294 **5.5 Carry over food additives**

295 For the purpose of this standard the "Carry Over" principle applies to the presence of additives such as  
296 colours, flavouring agents, anti-oxidants, emulsifying and stabilizing agents and preservatives in food, as a  
297 result of the use of raw material or other ingredients in which these additives were used. The presence of  
298 contaminants is not covered by this purpose.

299 The presence of an additive in food through the application of the carry over principle is admissible in general  
300 unless otherwise specifically prohibited in the rules or in Table 1, provided the total additive including the carry  
301 over through the raw material or other ingredients does not exceed the maximum amount so permitted.

302 **5.6 Source of natural flavour concentrate or extract**

303 Flavours may be obtained from botanical plants fruits which are internationally acceptable and are in  
304 conformity with CAC/GL 66, Guidelines for the use of flavourings.

305 **5.7 Herbs, fruits or extracts parts of plant origin**

306 Shall be of botanical name conforming to the glossary of Kenyan medicinal plant, or similar publication of  
307 Kenya Medical Research Institute (KEMRI) and Registered for use in food processing by Drugs and Poisons  
308 Board or certified by Kenya Plant Health Inspectorate Service (KEPHIS) if the plant is imported as a whole or  
309 part of plant for use in food processing.

310 **5.8 Basic characteristics**

311 Basic ingredients for flavoured drinking water shall be as given in Table 1.

312 **Table 1 — Basic ingredients for flavoured drinking water**

S/No	Substance	Types of flavored drinking water limits	Test method
------	-----------	---	-------------

		Carbonated sweetened	carbonated non sweetened	Non carbonated sweetened	Non-carbonated non sweetened	
i)	Colour, max.	15 true colour units	15 true colour units	15 true colour units	15 true colour units	ISO 7887
ii)	Turbidity, max.	2 NTU.	2 NTU.	2 NTU.	2 NTU.	ISO 7027
iii)	Flavors, sweeteners, concentrates, extracts, essential oils %,preservatives max.	1.0 max.	1.0 max.	1.0 max.	1.0 max.	
iv)	pH	3.0 – 5.4	3.0 – 5.0	6.0 – 8.5	6.0 – 8.5	ISO 10523
v)	Protein	ND	ND	ND	ND	
vi)	Sugars, max.	12 mg/L	ND	12 mg/L	ND	AOAC 932.15 and AOAC 950.31 and AOAC 950.29
vii)	Total dissolved solids, max.	1000 mg/L	1000 mg/L	1000 mg/L	1000 mg/L	ASTM D 5907
viii)	Total suspended solids	Not detectable	Not detectable	Not detectable	Not detectable	ASTM D 5907-13

Note 1 pH of alkaline flavoured drinking water shall be 8.6-10

Note 2 For natural carbonated flavored drinking water, the pH range shall be 5.5 – 6.0

## 313 5.9 Specific requirements

### 314 5.9.1 Physical requirements

315 Flavoured drinking water shall not have objectionable taste or odour to the consumers and shall be free from  
316 any foreign matter as stipulated in Table 1.

### 317 5.9.2 Chemical requirements

318 Packaged flavored water shall comply with the physico-chemical requirements as stipulated in Table 2 when  
319 tested in accordance to the test methods prescribed therein.

320 **Table 2 — General physico-chemical requirements of flavoured drinking water**

S/N	Substance	Limit	Test method
i)	Aluminium as Al <sup>3+</sup> , max.	0.2 mg/L	ISO 10566
ii)	Calcium as Ca <sup>2+</sup> , max.	150 mg/L	ISO 5961
iii)	Chloride as Cl <sup>-</sup> , max.	250 mg/L	ISO 9297
iv)	Fluoride as F <sup>-</sup> , max.	1.5 mg/L (See Note 1 and 2)	ISO 10359
v)	Iron as Fe <sup>2+</sup> , max.	0.3 mg/L	ISO 6332
vi)	Magnesium as Mg <sup>2+</sup> , max.	100 mg/L	ISO 7980
vii)	Nitrate as NO <sub>3</sub> <sup>-</sup> max.	45 mg/L	ISO 7890
viii)	Potassium as K <sup>+</sup> , max.	50 mg/L	ISO 9964-1
ix)	Sodium as Na <sup>+</sup> , max.	200 mg/L	ISO 9964-1
x)	Sulphate as SO <sub>4</sub> <sup>2-</sup> max.	400 (See Note 3)	ISO 10304
xi)	Sulphide as H <sub>2</sub> S max.	0.05 mg/L	ISO 10530
xii)	Total dissolved solids max	1000 mg/L	ASTM D 5907
xiii)	Total Alkalinity (as HCO <sub>3</sub> )	250 mg/L	ISO 9963-2

NOTE 1 Packaged flavoured drinking water containing between 1.5 mg/L and 4 mg/L fluoride shall have a labelling declaration flavoured drinking water contains Fluoride included.

NOTE 2 If the product contains more than 1.5 mg/L "the product not suitable for infants and children

under the age of seven years” shall be declared on the label.

NOTE 3 Flavoured drinking water containing between 200 mg/L and 400 mg/L sulphate shall have a labelling declaration “flavoured drinking water contains Sulphate” included.

321 **5.9.3 Limits for contaminants**

322 Flavoured drinking water shall not contain inorganic contaminants in excess of limits given in Table 2 when  
323 tested in accordance to the test methods prescribed therein.

324 **Table 3 — Requirements for limits of inorganic contaminants in flavoured drinking water**

S/N	Substance	Limit, mg/L, max.	Test method
i)	Ammonia as NH <sub>3</sub> ,	0.5	ISO 11732
ii)	Arsenic as As,	0.01	ISO 11969
iii)	Barium as Ba <sup>++</sup> ,	0.7	ISO 11885
iv)	Borate as B,	5.0	ISO11885
v)	Cadmium as Cd,	0.003	ISO 5961
vi)	Chromium as total Cr,	0.005	ISO 9174
vii)	Copper as Cu <sup>++</sup> ,	1	ISO 8288
viii)	Cyanide as CN <sup>-</sup> ,	0,01	ISO 6703
ix)	Free residual chlorine as Cl <sub>2</sub> ,	Nil	ISO 7393
x)	Iodine as I <sup>-</sup> ,	1.0	ASTM D 1246-55
xi)	Lead as Pb,	0.01	ISO 8288
xii)	Manganese as Mn <sup>++</sup> ,	0.4	ISO 6333
xiii)	Mercury as Hg,	0.001	ISO 12846
xiv)	Nitrite as NO <sub>2</sub> <sup>-</sup> ,	0.1	ISO 6777
xv)	Selenium as Se,	0.01	ISO 9965
xvi)	Silver as Ag,	0.5	ASTM D 1976-12
xvii)	Zinc as Zn <sup>++</sup> ,	5	ISO 8288
xviii)	Bromate as BrO <sub>3</sub>	0.01	ISO 15061
xviii)	Antimony as Sb,	0.005	ISO 11885
xix)	Nickel as Ni,	0.02	ISO 8288
	Uranium	0.03	ASTM D 6239-9

325 **5.9.4 Flavoured drinking water shall comply with the requirements for organic contaminants**  
326 **indicated in Table 4 when tested in accordance to the test methods prescribed therein.**

327 **Table 4 — Limits of organic contaminants in Flavoured drinking water**

S/N	Substance (arrange in alphabetical order)	Limit max. µg/l	Test method
i)	<b>Aromatics</b>		
	Benzene	10	ISO 11423
	Toluene	700	
	Xylene	500	
	Polynuclear aromatic hydrocarbon	0.7	ISO 13877
ii)	<b>Chlorinated alkanes and alkenes</b>		
	Carbon tetrachloride	2	ASTM D 4128- 06
	1,2-Dichloroethane	30	
	1,1-Dichloroethylene	0.3	
	1,1-Dichloroethene	30	
Tetrachloroethene	40		
iii)	<b>Phenolic substances</b>		
	Phenols	2	ISO 8165



S/N	Substance (arrange in alphabetical order)	Limit max. µg/l	Test method
	2,4,6-Trichlorophenol	200	ISO 14402
iv)	<b>Trihalomethanes</b>		
	Chloroform	30	ASTM D4128- 06
v)	<b>Pesticides</b>		
	Aldrin/Dieldrin	0.03	ISO 15089
	Chlordane (total)	0.3	
	2,4- Dichlorophenoxyacetic acid	30	
	DDT (total)	1	
	Heptachlor and Heptachlor Epoxide	0.03	
	Hexachlorobenzene	1	
	Lindane BHC	2	
	Methoxychlor	20	
vi)	Surfactants (reacting with methylene blue)	200	ISO 16265
vii)	Mineral oil	0.01	ISO 9377-2
viii)	Organic matter	3	ASTM D 4129-05

328 **5.9.5** Flavoured drinking water shall comply with the requirements of radioactive matter indicated in  
329 **Table 5.**

330 **Table 5 — Requirements of radioactive matter in flavoured drinking water**

S/N	Radioactive material	Limit in Bq/L	Test method
i)	Gross alpha activity	0.5	ISO 9696
ii)	Gross beta activity	1.0	ISO 9697

331 **5.9.6** Flavoured drinking water shall not have any sediment or suspended matter during its shelf life.

332 **5.9.8** Flavoured drinking water shall not contain any organic or inorganic substances at a level injurious to  
333 health.

## 334 6 Hygiene

335 **6.1** Packaged flavoured drinking water shall be collected, processed, packaged, and marketed under  
336 hygienic conditions complying with Annex A of EAS 13 or EAS 153

337 **6.2** Flavoured drinking water shall comply with the microbiological requirements given in Table 6 when  
338 tested in accordance to the test methods prescribed therein.

339 **Table 6 — Microbiological requirements for Flavoured drinking water**

S/N	Type of micro-organism	Limit	Test method
i)	Total viable counts at 22 °C, in ml max. <sup>a</sup>	100	ISO 6222
	Total viable counts at 37 °C, in ml, max. <sup>a</sup>	50	
ii)	Total Coliforms, in 100 ml	Absent	ISO 4832
iii)	<i>E. Coli</i> , in 100 mL	Absent	ISO 9308-1
iv)	<i>Staphylococcus aureus</i> , in 100 ml	Absent	ISO 6888-1
v)	Sulphite reducing anaerobes, in 100 ml	Absent	ISO 6461-2
vi)	<i>Pseudomonas aeruginosa</i> fluorescence, in 100 ml	Absent	ISO 16266

vii)	<i>Streptococcus faecalis</i> , in 100 ml	Absent	ISO 7899-2
viii)	<i>Shigella</i> , in 100 ml	Absent	ISO 21567
ix)	<i>Salmonella</i> , in 100 ml	Absent	ISO 6785
x)	<i>Vibrio cholera</i> , in 100 ml	Absent	ISO/TS 21872-1
xi)	<i>V. parahaemolyticus</i> , in 100 ml	Absent	ISO/TS 21872-1
xii)	<i>Giardia</i> , per 100ml	Not detectable	ISO 15553
xiii)	<i>Cryptosporidium</i> , per 100ml	Not detectable	
<sup>a</sup> This parameter is for monitoring the system at source. Total time before analysis should be not more than 6 h at 4°C. Determination of total viable counts shall start within 12 h after collection of the packaged drinking water sample.			

## 340 7 Packaging and labelling

### 341 7.1 Packaging

#### 342 7.1.1 Containers

343 7.1.1.1 The flavoured drinking water shall be properly packed in food grade material that shall preserve  
344 the quality of the product and preclude contamination from the external environment.

#### 345 7.1.2 Inspection of empty and filled containers

346 Containers shall be inspected thoroughly before and after filling. Bright light can be used in back ground to  
347 check containers and product. Magnification boxes may be used if necessary. Defective containers and  
348 product contained shall be rejected.

### 349 7.2 Weights and measures

350 Standard of weights and measures (packaged commodities) shall be as prescribed by the relevant Weights  
351 and Measures Regulations of the Partner States.

### 352 7.3 Labelling

353 The labels shall be legible and indelible marked. In addition to the requirements of EAS 38, 803,804, 805 and,  
354 the following provisions shall apply:

355 a) name of the product: Flavoured Drinking Water

356 Carbonated and/or sweetened products shall have the words carbonated and/or sweetened declared  
357 on the label;

358 b) Brand Name;

359 c) Ingredients; (purified water; Herbs; Fruits or parts of Plant origin extracts; Flavour name shall be  
360 declared);

361 d) Name and address of manufacturer;

362 e) Physical location of the manufacturer;

363 f) Date of manufacture;

364 g) Batch number;

365 h) Net volume of content;

366 i) Condition for storage;

- 367 j) Expiry date;
- 368 k) Processing method (optional);
- 369 l) Country of origin;
- 370 m) Crush the bottle after use; (if its one time use container);
- 371 n) Preservatives; carry over food additives added;
- 372 o) Any other markings required under the Standards of Weights and Measures; and
- 373 p) If non-nutritive artificial sweetener is used, the following words: "Contains Artificial Sweetener for  
374 Special Dietary use only" shall be declared on the label.

#### 375 **7.4 Labelling prohibitions**

376 **7.4.1** No claims concerning medical (preventative, alleviative or curative) or other beneficial effects relating  
377 to the health of the consumer shall be made in respect of the properties of the product covered in this  
378 standard.

379 **7.4.2** The name of the locality, hamlet, or specified place shall not form part of the trade name unless it  
380 refers to flavoured drinking water collected at the place designated by that trade name.

381 **7.4.3** The use of any statement or of any pictorial device which may create confusion in the mind of the  
382 public or in any way mislead the public about the nature, origin composition and properties of a containerized  
383 flavoured drinking water offered for sale shall be prohibited.

384 **7.4.4** The use of more than one brand name for similar products exploited from the same water source shall  
385 be prohibited.

386 **7.4.5** The use of one brand name for products exploited from different water source shall be prohibited.

#### 387 **8 Parameters required for minimum monitoring**

388 It is recognized that, in many instances, the cost of performing a full analysis against Table 1, Table 2, Table  
389 3, Table 4, Table 5 and Table 6 can be prohibitive.

390 Analysis of the parameters in Table 8 may be deemed acceptable for the purpose of indicating on going levels  
391 of operational efficiency in a water treatment plant. However, a relevant authority may require additional tests.

392

**Table 8 — Physico-chemical and microbiological parameters required for minimum monitoring**

Property	Test method
Physicochemical: Conductivity, or dissolved solids Colour Turbidity Taste Odour Flavors, sweeteners, concentrates, extracts, essential oils %, max.	See Table 1
Microbiological: Faecal coliform bacteria or <i>E. coli</i> ; <i>Shigella spp</i> <i>Salmonella spp</i>	See Table 6
Chemical: Fluoride as F <sup>-</sup> Nitrate Nitrite pH value Aluminum Iron (total) Ammonia Residual chlorine	See Table 3

394 If abnormal results are encountered in any of these analyses, sampling frequency shall be increased and/or  
 395 additional analyses carried out.

396 NOTE A consumer complaints register for the aesthetic qualities of the flavoured drinking water should be maintained.

## 397 9 Sampling plan for Flavoured drinking water

398 **9.1** In drawing, preparing, storing and handling samples, the following precautions and directions shall be  
 399 observed as far as possible:

400 a) Sample shall be drawn in original sealed bottle/container and kept in protected place not exposed to  
 401 damp air, dust or soot.

402 b) Each bottle/container in original shall be sealed and marked with full details of sampling.

403 **9.2** The quantity of packed water of the same type belonging to the same batch of manufacture and packed  
 404 in a day shall constitute a lot.

405 **9.3** For ascertaining the conformity of the material to the requirements of the specification, samples shall be  
 406 tested from each lot separately.

407 **9.4** The number of containers to be selected from a lot shall depend on the size of the lot and shall be  
 408 according to the sampling plan in Table 9.

**Table 9 — Sampling plan for Flavoured drinking water**

No. of containers in the lot (L)	Sample size (number of containers)
$L \leq 5\,000$	3
$5\,000 < L \leq 10\,000$	5
$10\,000 < L \leq 15\,000$	7
$L > 15\,000$	9

DEAS 947 for Public Commenting EAC/TC087

DEAS 941 for Public Commenting EAC/TC087