

# DRAFT UGANDA STANDARD

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## Tomato products — Specification — Part 2: Tomato sauce and Ketchup

PUBLIC REVIEW DRAFT



Reference number  
DUS DEAS 66-2: 2016

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- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

This Draft Uganda Standard, DUS DEAS 66-2: 2016, *Tomato products — Specification — Part 2: Tomato sauce and ketchup*, is identical with and has been reproduced from a Draft East African Standard, DEAS 66-2: 2016, *Tomato products — Specification — Part 2: Tomato sauce and ketchup*, and is being proposed for adoption as a Uganda Standard.

This standard was developed by the Food and agriculture Standards Technical Committee (UNBS/TC 2).

Wherever the words, "East African Standard" appear, they should be replaced by "Uganda Standard."



## **EAST AFRICAN STANDARD**

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**Tomato products — Specification — Part 2: Tomato sauce and Ketchup**

**EAST AFRICAN COMMUNITY**

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**HS 2103.20.2000**

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## **Foreword**

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In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that “Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose”.

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## Tomato products — Specification — Part 2: Tomato sauce and Ketchup

### 1 Scope

This Part 2 of EAS 66 prescribes the requirements for tomato sauce and ketchup (also known as catsup and catchup) as defined in Clause 3.

### 2 Normative references

The following referenced documents are indispensable for the application 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.

AOAC 971.27, Sodium chloride in canned vegetables. Method I

ISO 2173, *Fruit and vegetable products — Determination of soluble solids — Refractometric methods*  
AOAC 920.151 Solids (total) in fruits and fruit products

ISO 1842, Fruit and vegetable products -- Determination of pH

CODEX STAN 192, General standard for food additives

CAC/RCP 53, *Code of Hygienic Practice for Fresh Fruits and Vegetables*

EAS 38, *Labelling of prepackaged foods — Specification*

ISO 6633, *Fruits, vegetables and derived products -- Determination of lead content -- Flameless atomic absorption spectrometric method*

ISO 17240:2004 *Fruit and vegetable products -- Determination of tin content -- Method using flame atomic absorption spectrometry*

ISO 7952:1994 *Fruits, vegetables and derived products -- Determination of copper content -- Method using flame atomic absorption spectrometry*

ISO 6636-2:1981 *Fruits, vegetables and derived products -- Determination of zinc content -- Part 2: Atomic absorption spectrometric method*

ISO 17239:2004 *Fruits, vegetables and derived products -- Determination of arsenic content -- Method using hydride generation atomic absorption spectrometry*

ISO 4833 (all parts), *Microbiology of the food chain - Horizontal methods for the enumeration of microorganisms*

ISO 21527-1, *Microbiology of food and animal feedingstuffs – Horizontal methods for the enumeration of yeasts and moulds*

ISO 7251, *Microbiology of food and animal feedingstuffs – Horizontal methods for the detection and enumeration of presumptive Escherichia coli – Most Probable Number technique*

ISO 6579, *Microbiology of food and animal feedingstuffs – Horizontal methods for the detection of Salmonella spp.*

AOAC 965.41, *Mold in tomato products. Howard mold count*

### 3 Terms and definitions

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

#### 3.1

**tomato sauce and ketchup**



products derived from sound, ripe, red or reddish tomatoes and are highly seasoned with characterising ingredients such as pepper, onions, vinegar and sugar in quantities that materially alter the flavour, aroma and taste of the tomato component

### **3.2**

#### **sound**

Not overripe, not soft and free from diseases or insect damage, or bruising or physical injuries affecting keeping quality of the fruit.

### **3.3**

#### **Food grade packaging material**

Any material which when it comes in contact with food or if the area near food is unlikely to contaminate food with harmful materials

## **4 Requirements**

### **4.1 General requirements**

#### **4.1.1 Ingredients**

Substances that may be added to tomato sauce and ketchup include, vinegar, chillies, sucrose, invert sugar, dextrose, dried glucose syrup, glucose syrup, spices, flavouring, onions, or garlic which shall comply with the relevant applicable standards.

#### **4.1.2 Description**

Tomato sauce and ketchup shall be a product derived from sound tomatoes, tomato paste or puree; practically free from insect or fragments, fungal or any other blemish affecting the quality and safety of the product. Tomato sauce and ketchup shall possess good body and consistency, and uniform colour; be practically free from defects.

#### **4.1.3 Defects**

The products shall be practically free from the following defects:

- (a) tomato peel;
- (b) seeds or particles of seeds;
- (c) any extraneous plant material; and
- (d) dark specks or scale-like particles.

#### **4.1.4 Additives**

Food additives shall be used as per CODEX STAN 192.

#### **4.1.5 Organoleptic properties**

The finished products shall have the characteristic taste and flavor of tomato sauce and ketchup and shall be free from burnt or any other objectionable flavours. It shall be of good keeping quality and shall show no sign of fermentation.

#### **4.1.6 Fillers and stabilizers**

The products may contain artificial fillers such as cereal products or other permitted stabilizers.

## 4.2 Specific requirements

Tomato sauce and ketchup shall comply with the compositional requirements indicated in Table 1.

**Table 1 — Compositional requirements for tomato sauce/ketchup**

Characteristic		Requirement	Test method
Total soluble solids content, % by mass,	Tomato sauce	18 - 25	AOAC 920.151
	Tomato ketchup, min.	26	
Sodium chloride, % by mass, max.		6	AOAC 971.27
pH		Not higher than 4.5	ISO 1842
Specific gravity at 20 °C		1.050-1.111	Annex A

## 5 Contaminants

### 5.1 Pesticide residues

The products shall conform to the pesticide residue limits prescribed by the Codex Alimentarius Commission of the respective commodity.

### 5.2 Heavy metal limits

The products shall not exceed the limits for heavy metal indicated in Table 3.

**Table 3 — Requirements for heavy metal in tomato sauce and ketchup**

SL NO	Heavy metal	Maximum limits (ppm)	Test method
i)	Arsenic (As)	0.5	ISO 17239
ii)	Lead (Pb)	1.0	ISO 6633
iii)	Copper (Cu)	5	ISO 7952
iv)	Zinc (Zn)	5	ISO 6636-2
v)	Tin (Sn)	250	ISO 17240

## 7 Hygiene

**7.1** The products shall be prepared under hygienic conditions in accordance with EAS 39 .

### 7.2 Microbiological limits

The products shall be free from pathogenic organisms and shall comply with the microbiological limits indicated in Table 2.

**Table 2 — Microbiological limits for tomato sauce and ketchup**

Type of micro-organism	Maximum limits	Test method
Total viable counts, cfu/g	10	ISO 4833 (all parts)
Yeast/moulds cfu/g	shall be absent	ISO 21527-1
Escherichia coli MPN/g	shall be absent	ISO 7251
Salmonella sp. per 25 g	shall be absent	ISO 6579
Mould filament, max.	40 % positive fields	AOAC 965.41

## **8 Minimum fill**

The products shall occupy a minimum fill of not less than 90 % of the water holding capacity of the container which shall be determined in accordance with Annex B.

## **9 Packaging**

The products shall be packed in suitable food grade containers having no action on the products. The containers shall be free from other products that may lead to contamination and alter the quality, composition, flavour, odour and taste of the products. Containers shall be air tight and shall be provided with tamper- proof seals and closures. Containers shall preclude contamination with or proliferation of microorganisms in the products during storage and transport.

## **10 Labelling**

**10.1** In addition to the requirements of EAS 38, the following specific labelling requirements shall apply and shall be legibly and indelibly marked :

- Name of product including the type shall be “Tomato sauce” or “Tomato ketchup (or catsup or catchup)”. If an added ingredient, as defined in 4.1.1, alters the flavour characteristic of the product, the name of the food shall be accompanied by the term “flavoured with X” or “X flavoured” as appropriate.
- Name, physical and postal address of manufacturer/importer
- Country of origin
- Date of manufacture and expiry date
- List of ingredients
- Net content
- Storage condition
- Batch number in code or in clear.

### **10.2 Labelling of non-retail containers**

Information for non-retail containers shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer, packer, distributor or importer, as well as storage instructions, shall appear on the container. However, lot identification, and the name and address of the manufacturer, packer, distributor or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

## **10 Sampling**

Sampling shall be done in accordance with Annex C.

EAS 66-2:2016

## Annex A (normative)

### Determination of specific gravity

#### A.1 Principle

The method involves use of specific gravity bottle which enables a liquid's density to be measured accurately by reference to an appropriate working fluid which is water. The specific gravity bottle is weighed empty, full of water, and full of a liquid whose specific gravity is desired. The ratio of the mass of a unit volume of a substance to the mass of a unit volume of water is then calculated as the specific gravity.

#### A.2 Apparatus

*Specific gravity bottle/ pycnometer*

#### A.3 Procedure

Clean and thoroughly dry the specific gravity bottle and weigh it. Fill it up to the mark with freshly boiled and cooled water, which has been maintained at a temperature of  $20^{\circ}\text{C} \pm 1^{\circ}\text{C}$  and weigh. Remove the water, dry the bottle again and fill it with the material maintained at the same temperature. Weight the bottle again.

#### A.4 Calculation

##### A.4.1 Specify the temperature of testing

*A.4.1.1 Calculate as follows:*

$$\text{Specific gravity at } 20^{\circ}\text{C}/20^{\circ}\text{C} = \frac{C - A}{B - A}$$

Where C = mass in gram of the specific gravity bottle with the material  
A = mass in grams of the empty specific gravity bottle, and  
B = mass in grams of the specific gravity bottle with water.

**A.4.1.2** To find out the degree Brix, the table given in Annex A shall be used.

## Degrees brix. Specific gravity and degrees baume of sugar solutions

Degrees brix of Per cent by	Specific gravity At 25°/20°	Specific gravity at 25°/4°	Degrees Baume (Modulus 145)
0.0	1.000 000	0.998 234	0.00
0.2	1.000 78	0.999 010	0.11
0.4	1.001 55	0.999 786	0.22
0.6	1.002 33	1.000 563	0.34
0.8	1.003 11	1.001 342	0.45
1.0	1.003 89	1.002 120	0.56
1.2	1.004 67	1.002 897	0.67
1.4	1.005 45	1.003 675	0.79
1.6	1.006 23	1.004 453	0.90
1.8	1.007 01	1.005 234	1.01
2.0	1.007 79	1.006 015	1.12
2.2	1.008 58	1.006 796	1.23
2.4	1.009 36	1.007 580	1.34
2.6	1.010 15	1.008 363	1.46
2.8	1.010 93	1.009 148	1.57
3.0	1.011 72	1.009 934	1.68
3.2	1.012 51	1.010 721	1.79
3.4	1.013 30	1.011 510	1.90
3.6	1.014 09	1.012 298	2.02
3.8	1.014 88	1.013 089	2.13
4.0	1.015 57	1.013 881	2.24
4.2	1.016 47	1.014 673	2.35
4.4	1.017 26	1.015 467	2.46
4.6	1.018 06	1.016 261	2.57
4.8	1.018 86	1.017 058	2.68
5.0	1.019 65	1.017 854	2.79
5.2	1.101 45	1.018 652	2.91
5.4	1.021 25	1.019 451	3.02
5.6	1.022 06	1.020 251	3.13
5.8	1.022 86	1.021 054	3.24
6.0	1.023 66	1.021 855	3.35
6.2	1.024 47	1.022 659	3.46
6.4	1.025 27	1.023 463	3.57
6.6	1.026 08	1.024 270	3.69
6.8	1.026 89	1.025 077	3.80
7.0	1.027 70	1.025 885	3.91
7.2	1.028 51	1.026 694	4.02
7.4	1.029 32	1.027 504	4.13
7.6	1.030 13	1.028 316	4.24
7.8	1.030 95	1.029 128	4.35
8.0	1.031 76	1.029 942	4.46
8.2	1.032 58	1.030 757	4.58
8.4	1.033 40	1.031 573	4.69
8.6	1.034 22	1.032 391	4.80
8.8	1.035 04	1.033 209	4.91
9.0	1.035 86	1.034 029	5.02
9.2	1.036 68	1.034 850	5.13
9.4	1.037 50	1.035 671	5.24
9.6	1.038 33	1.036 494	5.35
9.8	1.039 15	1.037 318	5.46
10.0	1.039 98	1.038 143	5.57
10.2	1.040 81	1.038 970	5.68
10.4	1.041 64	1.039 797	5.80
10.6	1.042 64	1.040 626	5.91
10.8	1.043 00	1.041 456	6.02

Annex A Continued

11.0	1.044 13	1.042 298	6.13
11.2	1.044 97	1.043 121	6.24
11.4	1.045 80	1.043 954	6.35
11.6	1.046 64	1.044 788	6.46
11.8	1.047 47	1.045 625	6.57
12.0			
12.2	1.048 31	1.046 462	6.68
12.4	1.049 15	1.047 300	6.79
12.6	1.049 99	1.048 140	6.90
12.8	1.050 84	1.048 980	7.02
	1.051 68	1.049 822	7.13
13.0			
13.2	1.052 52	1.050 665	7.24
13.4	1.053 37	1.051 510	7.35
13.6	1.054 22	1.052 356	7.46
13.8	1.055 06	1.053 202	7.57
14.0	1.055 91	1.054 050	7.68
14.2	1.056 77	1.059 165	
14.4	1.057 62	1.060 022	8.34
14.6	1.058 47	1.050 880	8.45
14.8	1.059 33	1.061 733	8.56
16.0	1.050 18	1.062 598	8.67
16.2	1.065 34		8.78
16.4	1.066 21	1.063 460	8.89
16.6	1.067 07	1.064 324	9.00
16.8	1.067 94	1.065 188	9.11
17.0	1.068 81	1.066 054	9.22
17.2	1.069 68	1.066 921	9.33
17.4	1.070 55	1.067 799	9.45
17.6	1.071 42	1.066 658	9.56
17.8	1.072 29		9.67
	1.073 17	1.069 529	9.78
18.0		1.070 400	9.89
18.2	1.074 04	1.071 273	10.00
18.4	1.074 92	1.072 147	11.00
18.6	1.075 80	1.073 023	10.11
18.8	1.076 68	1.073 900	10.33
19.0	1.077 56	1.074 777	10.44
19.2		1.075 657	
	1.078 44		10.55
19.4	1.079 32	1.076 537	10.66
19.6	1.080 21	1.077 449	10.77
19.8	1.081 10	1.078 320	10.88
20.0	1.081 98	1.079 187	10.99
20.2	1.082 87	1.080 071	
20.4	1.083 76	1.080 959	11.10
20.6		1.081 848	11.21
20.8	1.084 65	1.082 737	11.32
	1.085 54	1.083 628	11.43
21.0	1.086 44	1.084 520	11.54
21.2	1.087 23	1.084 414	11.65
21.4	1.088 23	1.086 309	11.76
21.6	1.089 13	1.087 205	11.87
21.8	1.090 03	1.088 101	11.98
	1.090 93	1.089 000	12.09
22.0	1.091 83		
22.2	1.091 73	1.089 900	12.20
22.4	1.093 64	1.090 802	12.31
22.6	1.094 54	1.091 704	12.42
22.8	1.095 54	1.092 607	12.52
	1.095 45	1.093 513	12.63

Annex A Continued

23.0	1.096 36	1.094 420	12.74
23.2	1.097 27	1.095 328	12.85
23.4	1.098 18	1.096 236	12.96

23.6	1.099 09	1.097 147	13.07
23.8	1.000 00	1.098 058	13.18
24.0		1.098 971	13.29
24.2	1.100 92	1 099 886	13.40
24.4	1.101 83	1.100 802	13.51
24.6	1.102 75	1.101 718	13.62
24.8	1.103 67	1.102 637	13.73
25.0	1.104 59	1.103 557	13.84
25.2	1.105 51	1.105 400	13.95
25.4	1.106 43	1.106 324	14.06
25.6	1.107 36	1.107 248	14.17
25.8	1.108 28	1.108 175	14.28
26.0	1.109 21	1.109 103	14.39
26.2	1.110 14	1.110 033	14.49
26.4	1.111 06	1.110 963	14.60
26.6	1.112 00	1.111 895	14.71
26.8	1.112 93	1.112 828	14.82
27.0	1.113 86	1.113 763	14.93
27.2	1.114 80	1.114 697	15.04
27.4	1.115 73	1.115 635	15.15
27.6	1.116 67	1.116 572	15.26
27.8	1.117 61		15.37
28.0	1.118 55	1.117 512	
28.2	1.119 49	1.120 453	15.48
28.4	1.120 43	1.119 395	15.59
28.6	1.121 38	1.120 339	15.69
28.8	1.122 32	1.121 284	15.80
29.0	1.123 27	1.122 231	15.91
29.2	1.124 22	1.123 179	16.02
29.4	1.125 17	1.124 128	16.13
29.6	1.126 12	1.125 128	16.24
29.8	1.127 07	1.226 030	16.35
30.0	1.128 02		16.46
30.2	1.129 98	1.126 984	
30.4	1.130 93	1.127 939	16.57
30.6	1.130 89	1.128 896	16.67
30.8	1.131 85	1.129 853	16.78
31.0	1.132 81	1.130 812	16.89
31.2	1.133 78	1.131 773	17.00
31.4	1.134 74	1.132 735	17.11
31.6	1.135 70	1.133 698	17.22
31.8	1.136 67	1.134 663	17.33
32.0	1.137 64	1.135 628	17.43
32.2	1.138 61	1.136 596	17.54
32.4	1.139 58	1.137 565	17.65
32.6	1.140 55	1.138 534	17.76
32.8	1.141 52	1.139 506	17.87
33.0	1.142 50	1.140 479	17.96
33.2	1.143 47	1.141 453	18.08
33.4	1.144 45	1.142 420	18.19
33.6	1.145 43	1.143 405	18.30
33.8	1.146 41	1.144 384	18.41
34.0	1.147 39	1.145 363	18.52
34.2	1.148 37	1.146 345	18.63
34.4	1.149 36	1.147 328	18.73
34.6	1.150 34	1.148 313	18.84
			18.95



34.8	1.151 33	1.149 298	19.06
35.0	1.152 32	1.150 286	19.17
35.2	1.533 1	1.151 275	19.28
35.4	1.154 30	1.152 265	19.38
35.6	1.155 30	1.153 256	19.40
35.8	1.56 29	1.154 249	19.60
36.0	1.157 29	1.55 242	19.71
36.2	1.158 28	1.155 238	19.81
36.4	1.159 28	1.156 235	19.92
36.6	1.160 28	1.157 233	20.03
36.8	1.161 28	1.158 233	20.14
37.0	1.162 28	1.159 233	20.25
		1.160 236	20.35
37.2	1.163 29	1.161 236	20.46
	1.164 30	1.162 240	20.57
37.4	1.165 30	1.163 245	20.68
37.6	1.166 31	1.164 252	20.78
37.8	1.167 32	1.165 259	20.89
38.0	1.168 33	1.166 269	21.00
38.2	1.169 34	1.167 281	21.11
38.4	1.170 36	1.168 293	21.21
38.6	1.171 38	1.169 307	21.32
38.8	1.172 39	1.170 322	21.43
39.0	1.173 41	1.171 340	21.54
39.2	1.174 43	1.172 359	21.64
39.4	1.175 45	1.173 379	21.75
39.6	1.176 48	1.174 400	21.86
39.8	1.177 50	1.175 423	21.97
40.0	1.178 53	1.176 447	22.07
40.2	1.179 56	1.177 473	22.18
40.4	1.180 58	1.178 501	22.29
40.6	1.181 62	1.179 527	22.39
40.8	1.182 65	1.180 560	22.50
41.0	1.183 68	1.181 592	22.61
41.2	1.184 72	1.182 625	22.72
41.4	1.185 75	1.183 660	22.82
41.6	1.186 79	1.184 696	22.93
41.8	1.187 83	1.185 734	
		1.186 773	23.04
42.0	1.188 87	1.187 814	23.14
42.2	1.189 92	1.188 856	23.25
42.4	1.190 96	1.189 901	23.36
42.6	1.192 01	1.190 946	23.46
42.8	1.193 05	1.191 993	
			23.57
43.0	1.194 10	1.193.041	23.68
43.2	1.195 15	1.194.090	23.78
43.4	1.196 20	1.195 141	23.89
43.6	1.197 26	1.196 193	24.00
43.8	1.198 31		
		1.197 247	24.10
44.0	1.199 36	1.198 303	24.21
44.2	1.200 42	1.199 360	24.32
44.4	1.201 48	1.200 420	24.42
44.6	1.202 54	1.201 480	24.53
44.8	1.203 60		
45.0	1.204 67	1.202 540	24.63
45.2	1.205 73	1.203 603	24.74
45.4	1.206 80	1.204 668	24.85
45.6	1.207 87	1.205 733	24.95
45.8	1.208 94	1.206 801	25.06
46.0	1.210 01	1.207 870	25.17
46.2	1.211 08	1.208 940	25.27
46.4	1.212 15	1.210 013	25.38
56.6	1.213 23	1.211 086	25.48

46.8	1.214 31	1.212 162	25.59
47.0	1.215 38	1.213 238	25.70
47.2	1.216 46	1.214 317	25.80
47.4	1.217 55	1.215 395	25.91
47.6	1.218 63	1.216 476	26.01
47.8	1.219 71	1.217 559	26.12
48.0	1.220 80	1.218 643	26.23
48.2	1.221 89	1.219 729	26.33
48.4	1.222 98	1.220 815	26.44
48.6	1.224 06	1.221 904	26.54
48.8	1.225 16	1.222 995	26.65
49.0	1.226 25	1.224 086	26.75
49.2	1.227 35	1.225 180	26.86
49.4	1.228 44	1.226 274	26.96
49.6	1.229 54	1.227 371	27.07
49.9	1.230 64	1.228 469	27.18
50.0	1.213 74	1.229 567	27.80
50.2	1.232 84	1.230 668	27.39
50.4	1.233 95	1.231 770	27.49
50.6	1.235 06	1.232 874	27.60
50.8	1.236 16	1.233 979	27.70

## **Annex B (normative)**

### **Determination of the fill of the container**

#### **B.1 Scope**

This method applies to glass containers.

#### **B.2 Definition**

The water capacity of a container is the volume of distilled water at 20 °C which the sealed container will hold when completely filled.

#### **B.3 Procedure**

**B.3.1** Select a container which is undamaged in all respects.

**B.3.2** Weigh the filled container, (W1)

**B.3.3 Empty,** Wash, dry and weigh the empty container (W2).

**B.3.4** Fill the container with distilled water at 20 °C to the level of the top thereof, and weigh the container thus filled (W3).

**B.3.5 Calculate the** water capacity of a container

$$\text{WCC (Water Capacity of the Container)} = W3 - W2$$

#### **B.4 Calculation and expression of results**

Subtract the weight (W2) found in B.3.3 from the weight (W1) found in B.3.2 and divide the result by WCC found in B.3.5 and multiply by 100 fill the container. Results are expressed as percentage.

$$\begin{aligned}\text{Fill of the container} &= (W1 - W2) / \text{WCC} * 100 \\ &= (W1 - W2) / (W3 - W2) * 100\end{aligned}$$

## Annex C (normative)

### Sampling

#### B.1.1 Quality

The quality of a lot shall be considered acceptable when the number of defectives does not exceed the acceptance number (c) in the sampling plans.

#### B.1.2 Fill of container

A lot shall be deemed to be in compliance for fill of container (packing medium and vegetable ingredient) when the number of defectives does not exceed the acceptance number (c) in the sampling plans.

#### B.1.3 Drained weight

A lot shall be deemed to be in compliance for drained weight based on the average value of all samples analyzed according to the sampling plans.

### B.2 Sampling and acceptance procedure

#### B.2.1 Definitions

##### (i) Lot

A collection of primary containers or units of the same size, type, and style manufactured or packed under similar conditions and handled as a single unit of trade.

##### (ii) Lot size

The number of primary containers or units in the lot.

##### (iii) Sample size

The total number of sample units drawn for examination from a lot.

##### (iv) Sample unit

A container, a portion of the contents of a container, or a composite mixture of product from small containers that is sufficient for the examination or testing as a single unit. For fill of container, the sample unit shall be the entire contents of the container.

##### (v) Defective

Any sample unit shall be regarded as defective when the sample unit does not meet the criteria set forth in the standards.

##### (vi) Acceptance number (c)

The maximum number of defective sample units permitted in the sample in order to consider the lot as meeting the specified requirements.

##### (vii) Acceptable quality level (AQL)

The maximum percent of defective sample units permitted in a lot that will be accepted approximately 95 percent of the time.

#### B.2.2 Sampling plans

Lot size (primary containers)	Size of container	
	$n^1$	

<b>net weight equal to or less than 1 kg (2.2 lb)</b>		
4,800 or less	13	
4,801 to 24,000	21	
24,001 to 48,000	29	
48,001 to 84,000	48	
84,001 to 144,000	84	
144,001 to 240,000	126	
Over 240,000	200	
<b>net weight greater than 1 kg (2.2 lb) but not more than 4.5 kg (10 lb)</b>		
2,400 or less	13	
2,401 to 15,000	21	
15,001 to 24,000	29	
24,001 to 42,000	48	
42,001 to 72,000	84	
72,001 to 120,000	126	
Over 120,000	200	
<b>net weight greater than 4.5 kg (10 lb)</b>		
600 or less	13	
601 to 2,000	21	
2,001 to 7,200	29	
7,201 to 15,000	48	
15,001 to 24,000	84	
24,001 to 42,000	126	
Over 42,000	200	
<sup>1</sup> <i>n</i> = number of primary containers in sample. <sup>2</sup> <i>c</i> = acceptance number.		

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