DEAS 330: 2021

ICS 67.080.10

DRAFT EAST AFRICAN STANDARD

Citrus fruits — Specification

PUBLIC REVIEW DRAFT

EAST AFRICAN COMMUNITY

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2021

Second Edition

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Foreword

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

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

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. 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 Principles and procedures for development of East African Standards. XXXXXX.

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

The committee responsible for this document is Technical Committee EASC/TC 016 Fresh Fruits, vegetables and Tuber

This second edition cancels and replaces the first edition (EAS 330:2002), which has been technically revised.

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

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Citrus fruits — Specification

1 Scope

This Draft East African standard specifies the requirements for citrus fruit of varieties (cultivars) grown from the following species to be supplied fresh to the consumer, citrus fruit for industrial processing being excluded:

a) lemons grown from the species *Citrus limon* (L.) Burm. f. and hybrids thereof

b) Persian limes grown from the species *Citrus latifolia* (Yu. Tanaka) Tanaka, a large acid lime fruit known also as Bearss or Tahiti and hybrids thereof

c) Mexican limes grown from the species *Citrus aurantiifolia* (Christm.) Swingle, also known as sour limes and key limes and hybrids thereof

d) Indian sweet limes, Palestine sweet limes grown from the species *Citrus limettioides* Tanaka and hybrids thereof

e) Mandarins grown from the species (*Citrus reticulata* Blanco), including satsumas (*Citrus unshiu* Marcow.), clementines (*Citrus clementina* hort. ex Tanaka), and common mandarins (*Citrus deliciosa* Ten.) and tangerines (*Citrus tangerine* Tanaka), grown from these species and hybrids thereof

f) Oranges grown from the species *Citrus sinensis* (L.) Osbeck and hybrids thereof

g) Grapefruit grown from the species *Citrus paradisi* Macfad. and hybrids thereof

h) Pummelos or Shaddock grown from the species *Citrus maxima* (Burm.) Merr. and hybrids thereof.

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.

CAC/RCP 44, *Code of practice for packaging and transport of fresh fruit and vegetables*

CAC/RCP 53, *Code of hygienic practice for fresh fruits and vegetables*

CODEX STAN 193, *General standard for contaminants and toxins in food and feed*

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

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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— ISO Online browsing platform: available at http://www.iso.org/obp

4 Requirements

4.1 Minimum requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the citrus fruit shall be:

a) intact

b) free of bruising and/or extensive healed overcuts

c) sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded

d) clean, practically free of any visible foreign matter

e) practically free from pests infestation

f) free from damage caused by pests affecting the flesh

g) free of signs of shrivelling and dehydration

h) free of damage caused by low temperature or frost

i) free of abnormal external moisture

j) free of any foreign smell and/or taste.

The development and condition of the citrus fruit must be such as to enable it:

k) to withstand transportation and handling

l) to arrive in satisfactory condition at the place of destination.

4.2 Maturity requirements

4.2.1 The citrus fruit shall be sufficiently developed and display satisfactory maturity and/or ripeness, account being taken of criteria proper to the variety, the time of picking and the growing area.

Maturity of citrus fruit is defined by the following parameters specified for each species below:

a) minimum juice content

b) minimum total soluble solids content, i.e. minimum sugar content

c) minimum sugar/acid ratio

d) colouring.

4.2.2 The degree of colouring shall be such that following normal development the citrus fruit reach the colour typical of the variety at their destination point as indicated in Table 1.

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Table 1 — Maturity requirements for citrus fruits

Citrus fruit	Minimum juice content, %	Minimum sugar content, (°Brix)	Minimum sugar/acid ratio	Colouring
Lemons	20	-	-	Shall be typical of the variety. Fruit with a green colour is allowed, provided it satisfies the minimum requirements as to juice content
Limes				
Persian lime	42	-	-	The fruit should be green but may show yellow patches up to 30% of its surface for Persian limes and up to 20% for Mexican and Indian limes
Mexican and Indian sweet limes	40	-	-	
Satsumas, clementines, other mandarin varieties and their hybrids				
Satsumas	33	-	6.5:1	Shall be typical of the variety on at least one third of the surface of the fruit
Clementines	40	-	7.0:1	
Other mandarin varieties and their hybrids	33	-	7.5:1	
Oranges				
Blood oranges	30	-	6.5:1	Shall be typical of the variety. However, fruit with light green colouration not exceeding one fifth of the total surface area of the fruit is allowed, provided it satisfies the minimum requirements as to juice content. Oranges produced in areas with high temperatures and high relative humidity conditions during the developing period having a green colour exceeding
Navels group	33	-		
Other varieties	35	-		
Mosambi, Sathgudi and Pacitan with more than one fifth green colour	33	-	-	

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				one fifth of the surface area of the fruit are allowed, provided they satisfy the minimum requirements as to juice content.
Other varieties with more than one fifth green colour	45	-	-	
Grapefruit and hybrids				
All varieties and hybrids	35	-	-	Shall be typical of the variety. Fruit with a greenish colour (green in Oroblanco) is allowed, provided it satisfies the minimum requirements as to juice content
Oroblanco	35	9	-	
Pummelos (Shaddock) and hybrids	-	8	-	Shall be typical of the variety on at least two thirds of the surface of the fruit

4.2.3 Citrus fruit meeting these maturity requirements may be “degreened”. This treatment is only permitted if the other natural organoleptic characteristics are not modified.

4.3 Classification

Citrus fruit is classified in three classes, as defined below:

4.3.1 "Extra" Class

Citrus fruit in this class shall be of superior quality. It must be characteristic of the variety and/or commercial type.

It shall be free from defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.

4.3.2 Class I

Citrus fruit in this class shall be of good quality. It shall be characteristic of the variety and/or commercial type.

The following slight defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

a) a slight defect in shape

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b) slight defects in colouring, including slight sunburn

c) slight progressive skin defects, provided they do not affect the flesh

d) slight skin defects occurring during the formation of the fruit, such as silver scurfs, russets or pest damage

e) slight healed defects due to a mechanical cause such as hail damage, rubbing or

f) damage from handling

g) slight and partial detachment of the peel (or rind) for all fruit of the mandarin group.

4.3.3 Class II

This class includes citrus fruit that does not qualify for inclusion in the higher classes but satisfies the minimum requirements specified above.

The following defects may be allowed, provided the citrus fruit retains its essential characteristics as regards the quality, the keeping quality and presentation:

a) defects in shape

b) defects in colouring, including sunburn

c) progressive skin defects, provided they do not affect the flesh

d) skin defects occurring during the formation of the fruit, such as silver scurfs, russets or pest damage

e) healed defects due to a mechanical cause such as hail damage, rubbing or damage from handling

f) superficial healed skin alterations

g) rough skin

h) a slight and partial detachment of the peel (or rind) for oranges and a partial detachment of the peel (or rind) for fruit of the mandarin group.

4.4 Sizing

4.4.1 The fruits shall be sized according to the maximum diameter of their ‘equatorial’ section.

Table 2 — Minimum sizes for citrus fruits

Fruit	Diameter (mm)
Lemons	45
Persian limes	42
Mexican and Indian sweet limes	25
Satsumas, other mandarin varieties and hybrids	45
Clementines	35
Oranges	53
Grapefruit and hybrids	70
Pummelos and hybrids	100

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4.4.2 Citrus fruit may be sized by one of the following options:

a) To ensure uniformity in size, the range in size between produce in the same package shall not exceed:

i. 10 mm, if the diameter of the smallest fruit (as indicated on the package) is < 60 mm

ii. 15 mm, if the diameter of the smallest fruit (as indicated on the package) is ≥ 60 mm but < 80 mm

iii. 20 mm, if the diameter of the smallest fruit (as indicated on the package) is ≥ 80 mm but < 110 mm

iv. there is no limitation of difference in diameter for fruit ≥ 110 mm.

b) When size codes are applied, the codes and ranges in the following tables must be respected:

Table 3 — Size codes for citrus fruits

Citrus fruits	Size code	Diameter (mm)
Lemons		
	0	79 - 90
	1	72 - 83
	2	68 - 78
	3	63 - 72
	4	58 - 67
	5	53 - 62
	6	48 - 57
	7	45 - 52
Limes		
Persian limes	1	58 -67
	2	53 - 62
	3	48 - 57
	4	45 - 52
	5	42 - 49
Mexican and Indian sweet limes	1	Greater than 45
	2	40.1 - 45
	3	35.1 - 40
	4	30.1 - 35
	5	25 - 30
Satsumas, clementines, and other mandarin varieties and hybrids		
	1	63 - 74
	2	58 - 69
	3	54 - 64
	4	50 - 60
	5	46 - 56
	6[3]	43 - 52

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	7	41 - 48
	8	39 - 46
	9	37 - 44
	10	35 - 42
Oranges		
	0	92 – 110
	1	87 – 100
	2	84 – 96
	3	81 – 92
	4	77 – 88
	5	73 – 84
	6	70 – 80
	7	67 – 76
	8	64 – 73
	9	62 – 70
	10	60 – 68
	11	58 – 66
	12	56 – 63
	13	53 – 60
Grapefruit and hybrids		
	0	Less than 139
	1	109 – 139
	2	100 – 119
	3	93 – 110
	4	88 – 102
	5	84 – 97
	6	81 – 93
	7	77 – 89
	8	73 – 85
	9	70 - 80
Pummelos and hybrids		
	0	Less than 170
	1	156 – 170
	2	148 – 162
	3	140 – 154
	4	132 – 146
	5	123 – 138
	6	116 – 129
	7	100 – 118

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4.5 Tolerances

4.5.1 Quality tolerances

4.5.1.1 "Extra" Class

A total tolerance of 5 per cent, by number or weight, of citrus fruit not satisfying the requirements of the class but meeting those of Class I is allowed. Within this tolerance not more than 0.5 per cent in total may consist of produce satisfying the requirements of Class II quality.

4.5.1.2 Class I

A total tolerance of 10 per cent, by number or weight, of citrus fruit not satisfying the requirements of the class but meeting those of Class II is allowed. Within this tolerance not more than 1 per cent in total may consist of produce satisfying neither the requirements of Class II quality nor the minimum requirements, or of produce affected by decay.

4.5.1.3 Class II

A total tolerance of 10 per cent, by number or weight, of citrus fruit satisfying neither the requirements of the class nor the minimum requirements is allowed. Within this tolerance not more than 2 per cent in total may consist of produce affected by decay.

4.5.2 Size tolerances

For all classes: a total tolerance of 10 per cent, by number or weight, of citrus fruit corresponding to the size immediately below and/or above that (or those, in the case of the combination of three sizes) mentioned on the package is allowed.

In any case, the tolerance of 10 per cent applies only to fruit not smaller than the following minima:

Table 4 — Size tolerances for citrus fruits

Fruit	Diameter (mm)
Lemons	43
Persian limes	40
Mexican and Indian sweet limes	Not applicable
Satsumas, other mandarin varieties and hybrids	43
Clementines	34
Oranges	50
Grapefruit and hybrids	67
Pummelos and hybrids	98

5 Contaminants

5.1 Heavy metals

Citrus fruits shall comply with those current maximum levels for heavy metals established by the Codex Alimentarius Commission in accordance with CODEX STAN 193

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5.2 Pesticide residues

Citrus fruits shall comply with those maximum pesticide residue limits established by the Codex Alimentarius commission

6 Hygiene

6.1 Citrus fruits shall be prepared and handled in accordance with CAC/RCP 53**.**

6.2 Citrus fruits shall be free from parasites, microorganisms or substances originating from them in amounts which may present a hazard to human health

7 Packaging

7.1 Citrus fruits shall be packaged in food grade packaging material that will safeguard the hygienic, safety, nutritional, technological and organoleptic qualities of the produce in accordance with CAC/RCP 44 to avoid causing any external or internal damage to the produce.

7.2 The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided the printing or labelling has been done with non-toxic ink or glue.

7.3 The contents of each package shall be uniform and contain only citrus fruit of the same origin, variety or commercial type, quality and size, and appreciably of the same degree of ripeness and development

7.4 A mixture of citrus fruit of distinctly different species may be packed together in a sales package, provided they are uniform in quality and, for each species concerned, in variety or commercial type and origin. However, in case of those mixtures uniformity in size is not required. The visible part of the contents of the package must be representative of the entire contents.

8 Labelling

The following specific labelling requirements shall apply and shall be legibly and indelibly labelled in accordance with the requirements of EAS 38

a) name of produce as:

i. “Lemons”, “Limes”, “Persian limes”, “Mexican limes”, “Indian sweet limes”/ “Palestine sweet limes”, “Mandarins”, “Oranges, “Grapefruit”, “Pummelos”/Shaddock” if the produce is not visible from the outside

ii. “Mixture of citrus fruit” or equivalent denomination and common names of the different species, in case of a mixture of citrus fruit of distinctly different species

iii. for oranges: the name of the variety and/or the respective variety group in the case of “Navels” and “Valencias”

iv. for “Satsumas” and “Clementines”: the common name of the species is required and the name of the variety is optional;

v. for other mandarins and their hybrids thereof: the name of the variety is required

Note For all other species: the name of the variety is optional.

b) name and physical address of the exporter, packer

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c) country of origin

d) class

e) date of packing

f) size code

g) batch number

h) net weight.

Note Traceability code citrus fruits may also be included on the labelling.- reason its optional yet general opening statement is mandatory. Furthermore country of origin takes care of that

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Bibliography

[1] UNECE Standard FFV-14, *Citrus fruit: 2017 edition*

[2] EAS 330:2002, *Citrus fruit — Specification*

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