

Cheese — Specification

Part 5:

Cottage

PUBLIC REVIEW DRAFT

TECHNICAL COMMITTEE REPRESENTATION

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Kenya Dairy Board
Ministry of Health — Food Safety Unit
Directorate of Livestock production
Directorate of Veterinary Services
Egerton University — Department of Dairy and Food Science Technology
Government Chemist's Department
National Public Health Laboratory Services
Kenya Industrial Research and Development Institute (KIRDI)
New Kenya Creameries Cooperative (NKCC)
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KENYA STANDARD

KS 28-5: 2018
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Cheese — Specification

Part 5:

Cottage

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Foreword

This Kenya Standard was prepared by the Milk and Milk Products Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

Cheese is the ripened or unripened soft, semi-hard, hard, or extra-hard product, which may be coated, and in which the whey protein/casein ratio does not exceed that of milk, obtained by:

- (a) coagulating wholly or partly the protein of milk, skimmed milk, partly skimmed milk, cream, whey cream or buttermilk, or any combination of these materials, through the action of rennet or other suitable coagulating agents, and by partially draining the whey resulting from the coagulation, while respecting the principle that cheese-making results in a concentration of milk protein (in particular, the casein portion), and that consequently, the protein content of the cheese will be distinctly higher than the protein level of the blend of the above milk materials from which the cheese was made; and/or
- (b) processing techniques involving coagulation of the protein of milk and/or products obtained from milk which give an end-product with similar physical, chemical and organoleptic characteristics as the product defined under (a).

There are various types of cheese that are produced and marketed worldwide. This Part 5 of this Kenya Standard specifies the requirements for the type of hard cheese being marketed in Kenya as cottage cheese.

In the preparation of this standard useful information was derived from members of the technical committee, Codex standard for Cottage cheese (CODEX STAN 273-1968) and local manufacturers

KENYA STANDARD

DKS 28-5: 2018

Cheese — Specification

Part 5:

Cottage cheese**1 Scope**

The Kenya Standard prescribes the requirements for cottage cheese for direct human consumption or for further processing.

2 Normative references

The following referenced documents are indispensable for the application of this Kenya Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

KS 28-1:2009, *Cheese — Specification — Part 1: General requirements*

KS 2787, Group Standard for Unripened Cheeses Including Fresh Cheeses

KS EAS 69, Pasteurized milk- Specification

KS 35, creams and prepared creams

KS EAS 38, *Labelling of pre-packaged foods*

KS CAC/GL 23, *Guidelines for use of nutrition claims*

KS CODEX STAN 193, *Codex general standard for contaminants and toxins in foods*

KS ISO 1735, *Cheese and processed cheese products — Determination of fat content — Gravimetric method (Reference method)*

KS ISO 3433, *Cheese — Determination of fat content — Van Gulik method*

KS ISO 5534, *Cheese and processed cheese — Determination of the total solids content (Reference method)*

KS ISO 6731, *Milk, cream and evaporated milk - Determination of total solids content (reference method)*

KS ISO 6732; Milk and milk products -- Determination of iron content -- Spectrometric method (Reference method)

KS ISO/TS 6733; Milk and milk products -- Determination of lead content -- Graphite furnace atomic absorption spectrometric method

KS ISO 11866-2:2007; Milk and milk products-Enumeration of presumptive escherichia coli - Part 2: Colony-count technique at 44 °C using membrane

KS ISO 6579:2002 Microbiology of food and animal feeding stuffs - Horizontal method for the detection of Salmonella spp

KS ISO 11866-2, *Milk and milk products-Enumeration of presumptive escherichia coli - Part 2: Colony-count technique at 44 °C using membrane*

KS ISO/TS 11869:2012; Fermented milks -- Determination of titratable acidity -- Potentiometric method

KS ISO 14501:2007 Milk and milk powder - Determination of aflatoxin M content - Clean-up by immunoaffinity chromatography and determination by high-performance liquid chromatography

KS ISO 16649-1:2001; Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli -- Part 1: Colony-count technique at 44 degrees C using membranes and 5-bromo-4-chloro-3-indolyl beta-D-glucuronide

KS ISO 4833-1:2013; Microbiology of the food chain -- Horizontal method for the enumeration of microorganisms -- Part 1: Colony count at 30 degrees C by the pour plate technique

KS ISO 5738:2004 (IDF 76:2004); Milk and milk products -- Determination of copper content -- Photometric method (Reference method)

KS ISO 6611, Milk and milk products — Enumeration of colony—forming units of yeasts and/or moulds — Colony-count technique at 25 degrees C

KS ISO 6888-1:1999; Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) -- Part 1: Technique using Baird-Parker agar medium

KS ISO 8968-1:2014 (IDF 20-1:2014); Milk and milk products -- Determination of nitrogen content -- Part 1: Kjeldahl principle and crude protein calculation

AOAC 942.17, Arsenic in foods Molybdenum blue method

AOAC 999.10, Lead, Cadmium, Copper, Iron, and Zinc in foods, Atomic Absorption Spectrophotometry after dry ashing

AOAC 962.16 Beta-lactam Antibiotics in milk

AOAC 980.21, Aflatoxin M1 in milk and cheese-thin layer chromatographic method

AOAC 980.21, organochlorine and organophosphorous pesticide residues in milk and milk products

KS ISO 3890-1:2009 (IDF 75-1:2009); Milk and milk products -- Determination of residues of organochlorine compounds (pesticides) -- Part 1: General considerations and extraction methods

KS ISO 3890-2:2009 (IDF 75-2:2009); Milk and milk products -- Determination of residues of organochlorine compounds (pesticides) -- Part 2: Test methods for crude extract purification and confirmation

3 Product Description

Cottage Cheese is a soft, rindless, unripened cheese in conformity with the General Standard for Cheese (KS 28-1)) and the Standard for Unripened Cheese Including Fresh Cheese (KS 2787). The body has a near white colour and a granular texture consisting of discrete individual soft curd granules of relatively uniform size, from approximately 3–12 mm depending on whether small or large type of curd is desired, and possibly covered with a creamy mixture.

4 Essential composition and quality factors

4.1 Raw materials

Milk and/or products obtained from milk complying with relevant Kenya standard

4.2 Permitted ingredients

- a) Starter cultures of harmless lactic acid and/ or flavour producing bacteria and cultures of other harmless micro-organisms;
- b) Rennet or other safe and suitable coagulating enzymes;
- c) Gelatin and starches: These substances can be used in the same function as stabilizers, provided they are added only in amounts functionally necessary as governed by Good Manufacturing Practice taking into account any use of the stabilizers/thickeners listed in section 4;
- d) Sodium chloride and potassium chloride as a salt substitute; complying with KS CODEX STAN 150
- e) Calcium chloride in an amount not more than 0.02 percent (calculated as anhydrous calcium chloride) of the weight of the dairy ingredients, used as a coagulation aid
- f) Potable water; complying with KS EAS 12
- g) Safe and suitable processing aids.

4.3

Table 1 — Compositional requirements for Cottage cheeses

Milk constituent:	Minimum content (m/m):	Maximum content (m/m):	Reference level(m/m):	METHOD OF TEST
Milkfat in dry matter	0%	Not restricted	4–5%	
Fat free dry matter:	18%	Restricted by the MFFB		
Salt %, max	-	3%		

Compositional modifications beyond the minimum and maximum specified above for fat free dry matter are not considered to be in compliance with KS 28-1.

5 FOOD ADDITIVES

Only those additives classes indicated as justified in the table below may be used for the product categories specified. Within each additive class, and where permitted according to the table, only those food additives listed below may be used and only within the functions and limits specified.

Table 2

Additive functional class:	Justified use:	
	Cheese mass ^a	Surface/rind treatment
Colours:	—	—
Bleaching agents:	—	—
Acids:	X	—
Acidity regulators:	X	—
Stabilizers:	X ^a	—
Thickeners:	—	—
Emulsifiers:	—	—
Antioxidants:	—	—
Preservatives:	X	—
Foaming agents:	—	—
Anti-caking agents:	—	—

a Cheese mass includes creaming mixture

b Stabilizers including modified starches may be used in compliance with the definition of milk products and only to the extent they are functionally necessary, taking into account any use of gelatine and starches as provided for in 4.2.

X The use of additives belonging to the class is technologically justified.

NOTE the dash — Means the use of additives belonging to the class is not technologically justified.

Table 3

INS No.	Name of additive	Maximum level
Preservatives		
200	Sorbic acid	1000 mg/kg singly or in combination as sorbic acid
201	Sodium sorbate	
202	Potassium sorbate	
203	Calcium sorbate	
234	Nisin	12.5 mg/kg
280	Propionic acid	Limited by GMP
281	Sodium propionate	
282	Calcium propionate	
283	Potassium propionate	
	Natamycin	
Acidity regulators		
170(i)	Calcium carbonate	Limited by GMP
261(i)	Potassium acetate	Limited by GMP

INS No.	Name of additive	Maximum level
261(ii)	Potassium diacetate	Limited by GMP
262(i)	Sodium acetate	Limited by GMP
263	Calcium acetate	Limited by GMP
325	Sodium lactate	Limited by GMP
326	Potassium lactate	Limited by GMP
327	Calcium lactate	Limited by GMP
350(i)	Sodium hydrogen malate	Limited by GMP
350(ii)	Sodium malate	Limited by GMP
351(i)	Potassium hydrogen malate	Limited by GMP
351(ii)	Potassium malate	Limited by GMP
352(ii)	Calcium malate	Limited by GMP
500(i)	Sodium carbonate	Limited by GMP
500(ii)	Sodium hydrogen carbonate	Limited by GMP
500(iii)	Sodium sesquicarbonate	Limited by GMP
501(i)	Potassium carbonate	Limited by GMP
501(ii)	Potassium hydrogen carbonate	Limited by GMP
504(i)	Magnesium carbonate	Limited by GMP
504(ii)	Magnesium hydrogen carbonate	Limited by GMP
575	Glucono-delta-lactone	Limited by GMP
577	Potassium gluconate	Limited by GMP
578	Calcium gluconate	Limited by GMP
Acids		
260	Acetic acid	Limited by GMP
270	Lactic acid (L-, D- and DL-)	Limited by GMP
296	Malic acid (DL-)	Limited by GMP
330	Citric acid	Limited by GMP
338	Orthophosphoric acid	880 mg/kg as phosphorus
507	Hydrochloric acid	Limited by GMP
Stabilizers		
331(i)	Sodium dihydrogen citrate	Limited by GMP
332(i)	Potassium dihydrogen citrate	Limited by GMP
333	Calcium citrates	Limited by GMP
339(i)	Monosodium orthophosphate	1300 mg/kg, singly or in combination, expressed as phosphorus
339(ii)	Disodium orthophosphate	
339(iii)	Trisodium orthophosphate	
340(i)	Monopotassium orthophosphate	
340(ii)	Dipotassium orthophosphate	
340(iii)	Tripotassium orthophosphate	
341(i)	Monocalcium orthophosphate	
341(ii)	Dicalcium orthophosphate	
341(iii)	Tricalcium orthophosphate	
342(i)	Monoammonium orthophosphate	
342(ii)	Diammonium orthophosphate	
343(ii)	Dimagnesium orthophosphate	
343(iii)	Trimagnesium orthophosphate	

INS No.	Name of additive	Maximum level
450(i)	Disodium diphosphate	
450(iii)	Tetrasodium diphosphate	
450(v)	Tetrapotassium diphosphate	
450(vi)	Dicalcium diphosphate	
451(i)	Pentasodium triphosphate	
451(ii)	Pentapotassium triphosphate	
452(i)	Sodium polyphosphate	
452(ii)	Potassium polyphosphate	
452(iv)	Calcium polyphosphate	
452(v)	Ammonium polyphosphate	
400	Alginate acid	Limited by GMP
401	Sodium alginate	Limited by GMP
402	Potassium alginate	Limited by GMP
403	Ammonium alginate	Limited by GMP
404	Calcium alginate	Limited by GMP
405	Propylene glycol alginate	5000 mg/kg
406	Agar	Limited by GMP
407	Carrageenan and its Na, K, NH ₄ , Ca and Mg salts (includes Furcelleran)	Limited by GMP
407a	Processed Euchema seaweed PES	Limited by GMP
410	Carob bean gum	Limited by GMP
412	Guar gum	Limited by GMP
413	Tragacanth gum	Limited by GMP
415	Xanthan gum	Limited by GMP
416	Karaya gum	Limited by GMP
417	Tara gum	Limited by GMP
440	Pectins	Limited by GMP
466	Sodium carboxymethyl cellulose	Limited by GMP
Stabilizers (modified starches)		
1400	Dextrins, roasted Starch	Limited by GMP
1401	Acid-treated Starch	Limited by GMP
1402	Alkaline-treated starch	Limited by GMP
1403	Bleached starch	Limited by GMP
1404	Oxidized starch	Limited by GMP
1405	Starches, enzyme-treated	Limited by GMP
1410	Monostarch phosphate	Limited by GMP
1412	Distarch phosphate	Limited by GMP
1413	Phosphated distarch phosphate	Limited by GMP
1414	Acetylated distarch phosphate	Limited by GMP
1420	Starch Acetate	Limited by GMP
1422	Acetylated distarch adipate	Limited by GMP
1440	Hydroxypropyl starch	Limited by GMP
1442	Hydroxypropyl distarch phosphate	Limited by GMP

6. Hygiene

6.1 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections KS 1552 and other relevant Kenya standards and regulations. The products should comply with any microbiological criteria established in accordance with KS CAC/GL 21

6.2 The products shall comply with any microbiological criteria established in accordance with Table 4 below.

Table 4 — Microbiological requirements for cottage cheese

S/N	Quality	Requirements Cfu/g	Test method
	Total viable count /g max	2×10^4 cfu/g	KS ISO 4833
	Listeria monocytogenes <i>max</i> ,	<i>Nil per gram</i>	KS ISO 4833
	Salmonella spp	<i>Nil per gram</i>	KS ISO 4833
	Shigella	<i>Nil per gram</i>	KS ISO 4833 KS ISO 21567
	Clostridium botulinum	<i>Nil per gram</i>	KS ISO 4833
	Staphylococcus aureus	<i>Nil per gram</i>	KS ISO 4833
	E.coli	<i>Nil per gram</i>	KS ISO 4833
	Faecal coliforms:, <i>max</i>	<i>Nil per gram</i>	KS ISO 4832
	Non-faecal coliforms, <i>max</i>	100 cfu/g	KS ISO 4832
	Mould, <i>max</i>	100 cfu/g	KS ISO 6611
	Yeast, <i>max</i>	10 cfu/g	KS ISO 6611

7.1 Contaminants

The products covered by this Standard shall comply with the Maximum Levels for contaminants that are specified for the product in the *General Standard for Contaminants and Toxins in Food and Feed* (KS CODEX STAN 193-1995).

The milk used in the manufacture of the products covered by this Standard shall comply with the Maximum Levels for contaminants and toxins specified for milk by the *General Standard for Contaminants and Toxins in Food and Feed* (KS CODEX STAN 193-1995) and with the maximum residue limits for veterinary drug residues and pesticides established for milk by the CAC.

7.1 Heavy metals

The products covered by this standard shall comply with the maximum limits in Table 5

Table 5 — Limits for heavy metal contaminants for Cottage cheese

SL No	Heavy metal	MRL (Max.)	Test method
i).	Arsenic (AS)	0.1 mg/kg	AOAC 942.17

ii).	Lead (Pb)	0.02 mg/kg	AOAC 972.25 / KS ISO 6733
iii).	Mercury (Hg)	1.0 mg/kg	AOAC 999.10
iv).	Copper (Cu)	5.0 mg/kg	AOAC972.25 / KS ISO 5738
v).	Zinc (Zn)	50 mg/kg	AOAC 999.10
vi).	Tin (Sn)	250 mg/kg	AOAC 999.10
vii).	Cadmium as Cd,	1.5 mg/kg	AOAC 999.10
viii).	Iron (Fe),	0.5 mg/kg	AOAC 999.11/ KS ISO 6732

7.2 Pesticide residues

In addition to the maximum limits established by the Codex Alimentarius Commission for these products in codex Stan 193; the products covered by the provisions of this standard shall comply with the Maximum Levels for contaminants specified in table 6 below;

Table 6- maximum residue limits for Cottage cheese

S/N	Parameter	Requirements	Test method
<i>i</i>	ORGANOCHLORINE Group	0.01 ppm	KS ISO 3890-1:2009 OR AOAC 970.52
<i>ii</i>	ORGANOPHOSPHOROUS Group	0.01 ppm	AOAC 970.52

7.3 Mycotoxin residues

Cottage cheese shall not have more than have 0.5 µg/kg aflatoxin M1 content when tested according to KS ISO 14501:2007/ AOAC 980.21, Aflatoxin M1 in milk and cheese- thin layer chromatographic method

7.4 Antibiotics

Cottage cheese shall not have more than 10.0 ppb total antibiotic as (beta lactam) content when tested according to AOAC 962.16, Beta-lactam Antibiotics in milk

8 PACKAGING AND LABELLING

8.1 Packaging

The product shall be packed in food grade material that ensures product safety and integrity.

8.2 Labelling

In addition to the provisions of KS EAS 38 and the General Standard for the Use of Dairy Terms (KS CODEX STAN 206-1999), the following specific provisions shall apply:

8.2.1 Name of the food

The name Cottage Cheese may be applied in accordance with KS EAS 38, provided that the product is in conformity with this Standard. Where customary in the country of retail sale, alternative spelling may be used. The name may be translated into other languages so that the consumer in the country of retail sale will not be misled

The use of the name is an option that may be chosen only if the cheese complies with this standard. Where the name is not used for a cheese that complies with this standard, the naming provisions of KS 28-1 apply.

The designation of products in which the fat content is below or above the reference range specified in section 3.3 of this Standard shall be accompanied by an appropriate qualification describing the modification made or the fat content (expressed as fat in dry matter or as percentage by mass whichever is acceptable in the country of retail sale), either as part of the name or in a prominent position in the same field of vision.

Suitable qualifiers include nutritional claims in accordance with the Guideline for the Use of Nutritional Claims (KS CAC/GL 23). In addition the appropriate characterizing terms describing the nature or style of the product may accompany the name of the food. Such terms include "dry curd" or "creamed"

8.2.2 Country of origin

The country of origin (which means the country of manufacture, not the country in which the name originated) shall be declared. When the product undergoes substantial transformation³⁾ in a second country, the country in which the transformation is performed shall be considered to be the country of origin for the purpose of labelling.

8.2.3 Declaration of milk fat content

The milk fat content shall be declared in a manner found acceptable in the country of retail sale, either (i) as a percentage by mass, (ii) as a percentage of fat in dry matter, or (iii) in grams per serving as quantified in the label, provided that the number of servings is stated.

8.2.4 Labelling of non-retail containers

Information specified in Clause 8.2 of this Standard and provisions of KS EAS 38 and, if necessary, storage instructions, shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name of the manufacturer or packer shall appear on the container, and in the absence of such a container, on the product itself. However, lot identification and the name and address may be replaced by an identification mark, provided that such mark is clearly identifiable with the accompanying documents.

8.2.5 Date marking:

3) For instance, repackaging, cutting, slicing, shredding and grating are not regarded as substantial transformation.

- i) Date of manufacture
- ii) Expiry date;
- ii) Storage instructions and / or conditions

8.2.6 Name and address of manufacturer

8.2.7 Net contents

8.2.8 Storage conditions

8.2.9 Lot identification

9 Methods of Analysis and Sampling

The products covered by the provisions of this standard shall be tested using appropriate standard methods declared in this standard. Other test may be performed as per the methods given in the latest AOAC/ Codex/ ISO and other internationally recognized methods

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