NÍVEIS PERMITIDOS DE MICROORGANISMOS EM PRODUTOS LÁCTEOS QUANDO SÃO POSTOS EM CIRCULAÇÃO

Technical Regulation of the Customs Union "On Safety of Milk and Dairy Products" **(CU TR 033/2013 - Anexo 8)** adopted by Resolution of the Eurasian Economic Commission Commission No. 67 of October 9, 2013

Product	QMAFAnM*, CFU**/g (cm3), not above	E.coli group bacteria (coliforms)***	Product volume (amount,) cm3 (g,) where not allowed			Yeasts (Y), moulds (M), CFU/cm3 (g), Not above	Note
			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
I. Fluid milk, fluid cream, dairy drink, milk whey, buttermilk, heat treated products on their basis							
1. Fluid milk, dairy drink, in consumer package, including those enriched with vitamins, macro- and trace elements, lactulose, prebiotics:							
a) pasteurized	$1x10^5$	0,01	25	1	25	–	
b) sterilized	–	–	–	–	–	–	Industrial sterility
c) ultra-pasteurized (with aseptic filling)	–	–	–	–	–	–	requirements: a) after thermostatic holding at the temperature of 37 °C for 3 – 5 days, a lack of visible defects or deterioration indices (package buckling, appearance changes, etc.), a lack of taste or texture changes; b) after thermostatic holding the following changes are allowed: titratable acidity - no more than by 2°T; QMAFAnM - not above 10 CFU/cm^3 (g)

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
d) ultra-pasteurized (without aseptic filling)	100	10	100	10	25	–	
e) baked	$2.5x10^3$	0.1	25	–	25	–	
2. Fluid milk, dairy drink in churns and tanks	$2x10^5$	0.01	25	0.1	25	–	
3. Milk whey and buttermilk in consumer package, pasteurized	$1x10^5$	0.01	25	1	25	–	
4. Cream and cream-based products including those in consumer packages, in particular:							
a) pasteurized	$1x10^5$	0.01	25	1	25	–	
b) sterilized							Industrial sterility requirements: a) after thermostatic holding at the temperature of 37 °C for 3 - 5 days, a lack of visible defects or deterioration indices (package buckling, appearance changes, etc.), a lack of taste or texture changes; b) after thermostatic holding the following changes are allowed: titratable acidity - no more than by 2°T; QMAFAnM - not above 10 CFU/cm^3 (g)
c) enriched	$1x10^5$	0.01	25	1	25	–	
d) whipped	$1x10^5$	0.1	25	0.1	25	–	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
5. Cream and cream-based products, including those in churns and tanks	$1x10^5$	0.01	25	0.1	25	–	
6. Drinks, cocktails, kissels, jelly, sauces, creams, puddings, mousses, pastes, soufflé made on the basis of milk, cream buttermilk, whey – pasteurized	$1x10^5$	0.1	25	1	25	–	
7. Fermented milk products and products on their basis with the shelf life of no more than 72 hours:							
a) without components	Lactic acid microorganisms - not below $1x10^7$	0.01	25	1	–	–	
b) with components	Lactic acid microorganisms - not below $1x10^7$	0.01	25	1	–	–	
8. Fermented milk products and products on their basis with the shelf life above 72 hours:							
a) without components	Lactic acid microorganisms - not below $1x10^7$	0.1	25	1	–	Y – 50**** M – 50	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
b) with componentes	Lactic acid microorganisms - not below $1x10^7$	0.01	25	1	–	Y – 50**** M – 50	
c) enriched with bifidum bacteria and other probiotic microorganisms	Bifidum bacteria and other probiotic microorganisms - not below $1x10^6$ in the aggregate	0,1	25	1	–	Y – 50**** M – 50	
9. Sour cream and products on its basis, including those with components	lactic acid microorganisms - not below $1x10^7$	0.001 (for heat treated after ripening sour cream products – 0.1 g/ cm^3)	25	1	–	For products with the shelf life above 72 hours - Y – 50 M – 50	
10. Heat treated cultured and dairy composite products:							
a) without components	–	1	25	1	25	Y – 50 M – 50	
b) with components	–	1	25	1	25	Y – 50 M – 50	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
II. Curd, curd mass, curd products and products on their basis							
11. Curd without components (except curd made with the use of ultra-filtration, separation, and granular curd):							
a) with the shelf life of no more than 72 hours	lactic acid microorganisms - not below $1x10^6$	0.001	25	0.1	–	–	
b) with the shelf life above 72 hours	$1x10^6$	0.01	25	0.1	–	Y – 100 M – 50	
c) frozen	Microflora typical for curd starter, a lack of foreign microbial cells	0.01	25	0.1	–	Y – 100 M – 50	
12. Curd made with the use of ultra-filtration, separation:							
a) with the shelf life of no more than 72 hours	Microflora typical for curd starter, a lack of foreign microbial cells	0.01	25	0.1	–	–	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
b) with the shelf life above 72 hours	Microflora typical for curd starter, a lack of foreign microbial cells	0.01	25	0.1	–	Y – 50 M – 50	
13. Granular curd	Microflora typical for curd starter, a lack of foreign microbial cells	0.01	25	0.1	–	Y – 100 M – 50	
14. Curd with components, curd mass, curd cheese bars:							
a) with the shelf life of no more than 72 hours	Microflora typical for curd starter, a lack of foreign microbial cells	0.001	25	0.1	–	–	
b) with the shelf life above 72 hours	Microflora typical for curd starter, a lack of foreign microbial cells	0.01	25	0.1	–	Y – 100 M – 50	
c) frozen	Microflora typical for curd starter, a lack of foreign microbial cells	0.01	25	0.1	–	Y – 100 M – 50	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
15. Curd products:	Microflora typical for curd starter, a lack of foreign microbial cells						
a) with the shelf life of no more than 72 hours	Microflora typical for curd starter, a lack of foreign microbial cells	0.01	25	0.1	–	–	
b) with the shelf life above 72 hours	Microflora typical for curd starter, a lack of foreign microbial cells	0.01	25	0.1	–	Y – 100 M – 50	
c) frozen	–	0.01	25	0.1	–	Y – 100 M – 50	
16. Heat treated curd products, including those with components	–	0.1	25	1	–	50 in the aggregate	
17. Milk albumin, products on its basis, except those made by culturing	$2x10^5$	0.1	25	0.1	–	Y – 100 M – 50	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
III. Milk, cream, buttermilk, dairy products, dairy composite products on their basis, sterilized concentrated and condensed, canned dairy products, canned composite dairy products							
18. Sterilized condensed, concentrated milk; sterilized condensed cream; sterilized condensed dairy and dairy composite products.							Industrial sterility requirements: a) after thermostatic holding at the temperature of 37 °C for 6 days, a lack ofvisible defects or deterioration indices (package buckling, appearance changes, etc.), a lack of taste or texture changes; b) after thermostatic holding: changes of titratable acidity are not allowed microbial cells should not be found on a microscopic slide c) additional requirement to baby foods – where inoculation is made, no fungi, yeasts or lactic acid microorganisms are found.
19. Condensed and concentrated milk in transportation containers, including churns and tanks	$2x10^5$	0.01	25	0.1	25	–	
20. Milk, cream condensed with sugar, in consumer package:							
a) without components	$2x10^4$	1	25	–	–	–	
b) with components	$2x10^4$	1	25	–	–	–	
21. Milk, cream condensed with sugar, in transportation containers	$4x10^4$	1	25	–	–	–	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
22. Buttermilk, whey condensed with and without sugar	$5x10^4$	1	25	–	–	–	
23. Condensed dairy products with sugar	$3.5x10^4$	1	25	–	–	–	
IV. Dairy products, dairy composite products, dry, sublimated (milk, cream, fermented milk products, drinks, ice-cream mixes, whey, buttermilk, skimmed milk)							
24. Dry (powdered) cow's milk							
a) ready-to-use	$5x10^4$	0.1	25	1	–	–	
b) for commercial processing	$1x10^5$	0.1	25	1	–	–	
25. Dry (powdered) dairy drinks	$1x10^5$	0.01	25	1	–	M – 50	
26. Dry (powdered) cream and dry (powdered) cream with sugar	$7x10^4$	0.1	25	1	–	–	
27. Dry (powdered) milk whey	$1x10^5$	0.1	25	1	25	Y –50 M – 100	
28. Dry (powdered) ice-cream mixes	$5x10^4$	0.1	25	1	25 (for soft ice-cream)	–	
29. Dry (powdered) fermented milk products	$1x10^5$	0.1	25	1	–	Y – 50 M – 100	
30. Buttermilk, whole milk substitute (powdered)	$5x10^4$	0.1	25	1	–	Y – 50 M – 100	
V. Concentrates of milk proteins, casein, milk sugar, caseinates, milk protein hydrolysates, powdered							
31. Alimentary caseinates	$5x10^4$ (sulfite-reducing clostridia in 0.01 g are not allowed)	0.1	25	–	–	–	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
32. Whey protein concentrate	$5x10^4$	1	25	1	–	–	
33. Alimentary casein concentrate	$2.5x10^3$	1	25	1	–	–	
34. Milk protein, alimentary caseins	$1x10^4$ (sulfite-reducing clostridia in 0.01 g are not allowed)	1	50	1	–	Y – 10 M – 50	
35. Milk sugar, refined	$1x10^3$	1	25	1	–	Y – 50 M – 100	
36. Alimentary milk sugar (alimentary lactose)	$1x10^4$	1	25	1	–	Y – 50 M – 100	
37. Lactulose concentrate	$1x10^3$	1	50	1	–	Y – 50 M – 100	
VI. Cheeses, cheese products: extra-hard, hard, semi-hard, soft, processed, whey-and-albumin, dry; cheese pastes, sauces							
38. Cheeses, cheese products: extra-hard, hard, semi-hard, soft, processed, whey-and-albumin)							
a) without components	–	0.001	25	0.001	25*****	–	
b) with components	–	0.001	25	0.001	25*****	–	
c) smoked	–	0.001	25	0.001	25*****	–	
39. Processed cheeses and cheese products:							
a) without components	$5x10^3$	0.1	25	–	–	Y – 50 M – 50	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
b) with componentes	$5x10^4$	0.1	25	–	–	Y – 100 M – 100	
c) smoked	$5x10^4$	0.1	25	–	–	Y – 100 M – 100	
40. Cheese sauces, pastes	$5x10^4$	0.1	25	–	–	–	
41. Dry (powdered) cheeses, cheese products	$5x10^4$	1	25	–	–	–	
VII. Butter, butter paste from cow's milk, milk fat							
42. Butter form cow's milk (sweet-cream, sour-cream, salted, unsalted):	No regulated in sour-cream butter						
a) without components	$1x10^5$	0.01	25	0.1	25	100 in the aggregate	
b) with components	$1x10^5$	0.01	25	0.1	25	Y – 100 M – 100	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
c) sterilized							Industrial sterility requirements: a) after thermostatic holding at the temperature of 37 °C for 3 - 5 days, a lack of visible defects or deterioration indices (package buckling, appearance changes, etc.), a lack of taste or texture changes; b) after thermostatic holding the following changes are allowed: acidity of fat phase – no more than by 0.5°K titratable acidity of milk plasma - no more than by 2°T QMAFAnM - no more than 100 CFU/g
43. Rendered butter	$1x10^3$	1.0	25	–	–	M – 200	
44. Powdered butter	$1x10^5$	0.01	25	0.1	25	100 in the aggregate	
45. Milk fat	$1x10^3$	1.0	25	–	–	M – 200	
46. Butter paste:							
a) without components	$2x10^5$	0.01	25	0.1	25	Y – 100 M – 100	
b) with components	$2x10^5$	0.001	25	0.1	25	Y – 100 M – 100	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
VIII. Cream-and-vegetable spread, rendered cream-and-vegetable mix							
47. Cream-and-vegetable spread	$1x10^5$	0.01	25	0.1	25	Y – 100 M – 100	
48. Rendered cream-and-vegetable mix	$1x10^3$	1	25	–	–	M – 200	
IX. Ice-cream: milk, sour-milk, cream, plombir, with milk fat substitute, tarts, cakes, deserts from ice-cream, mixes, ice-cream glaze							
49. Ice-cream: milk, cream, plombir, with milk fat substitute, hardened, including that with components, tarts, cakes, deserts from ice-cream	$1x10^5$	0.01	25	1	25	–	
50. Ice-cream: milk, cream, plombir, with milk fat substitute, soft, including that with components	$1x10^5$	0.1	25	1	25	–	
51. Liquid mixes for soft ice-cream	$3x10^4$	0.1	25	1	25	–	
52. Sour-cream ice-cream	Lactic acid microorganisms - not below $1x10^6$	0.1	25	1	25	–	
X. Starters (starter and probiotic microorganisms for making fermented milk products, sour cream butter and cheeses)							
53. Starters for kefir on kefir fungi	$1x10^8$	3	100	10	–	Y - not below $1x10^4$ M – 5	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
54. Symbiotic (liquid) starters for kefir product	$1x10^8$	3	100	10	–	Y - not below $1x10^4$ M – 5	
55. Starters from pure cultures:							
a) liquid, including frozen	$1x10^8$ for concentrated starters – not below $1x10^{10}$	10	100	10	–	5 in the aggregate	
b) dry (powdered)	$1x10^9$ for concentrated starters – not below $1x10^{10}$	1	10	1	–	5 in the aggregate	
XI. Enzymatic milk-clotting preparations							
56. Enzymatic milk-clotting preparations:							
a) of animal origin	$1x10^4$	1 E.coli in 25 g/cm^3	25 Sulfite-reducing clostridia in 0.01 g	–	–	–	
b) of plant origin	$5x10^4$	1	25	–	–	–	

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			Pathogenic microorganisms, including salmonella	Staphylococci, S.aureus	listeria L.mono-cytogenes		
c) of microbial and fungal origin	$5x10^4$ should not contain viable forms of enzyme producers	1	25	–	–	–	should not have antibiotic activity. Enzymatic preparations of fungal origin should not contain mycotoxins.
XII. Milk-based dry nutrient media for the cultivation of starter and probiotic microflora							
57. Milk-based dry nutrient media for the cultivation of starter and probiotic microflora	$5x10^4$	0.01	25 Sulfite-reducing clostridia in 0.01 g	–	–	–	
XIII. Milk-containing products							
58. Milk-containing products							requirements are established with consideration given to the regulatory and technical documents concerning the content and ratios of dairy and non-dairy components in a product

Notes:

1. The hygienic norms for microbiological indicators of safety and nutritional value of food products include the following groups of microorganisms:

sanitary indicator microorganisms that include the quantity of mesophilic aerobic and facultative anaerobic microorganisms (QMAFAnM), E.coli group bacteria (coliforms), bacteria of Enterobacteriaceae spp., enterococci;

opportunistic pathogens that include E. coli, Staphylococcus aureus, bacteria of Proteus spp., B. cereus and sulfite-reducing clostridia, Vibrio parahaemolyticus;

pathogenic microorganisms, including salmonella and Listeria monocytogenes, Yersinia spp.;

spoilage microorganisms, including yeasts, mould fungi, lactic acid microorganisms;

starter microflora microorganisms and probiotic microorganisms (lactic acid microorganisms, propionoc acid microorganisms, yeasts, bifidum bacteria, acidophilic bacteria, etc.) – in products with a regulated level of biotech microflora and in probiotic products.

2. The regulation of microbiological indicators of safety of food products is carried out for most of the groups of microorganisms based on the alternative concept – a product amount is rated where coliforms, most of opportunistic pathogens, and pathogenic microorganisms including salmonella and Listeria monocytogenes are not allowed. In other cases, a norm shows the quantity of colony-forming units in 1 cm3 (g) of a product (CFU/ cm3 (g)).

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* QMAFAnM – quantity of mesophilic aerobic and facultative anaerobic microorganisms.
** CFU – colony-forming units.
***Coliforms – E.coli group bacteria.
**** The content of yeasts at the end of shelf life not below 1x104 for ayran and kefir, not below 1x104 for kumiss; the presence of yeasts is allowed in the products made with their use in the starter.
***** The amount of product (g) where not allowed is 125 g (for soft and pickled cheeses – in 5 samples of 25 g each.)