



United States Department of Agriculture

Marketing and
Regulatory
Programs

Agricultural
Marketing
Service

Dairy
Program

USDA Specifications for Mozzarella Cheeses

**Effective September 24, 2012
(Reprinted – December 2018)**

Non-Discrimination Policy: In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotope, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

USDA Specifications for Mozzarella Cheeses

Section	Page No.
1.0 Scope	4
2.0 Plant Requirements	4
3.0 Product age and Temperature Requirements	4
4.0 Regulatory Requirements.....	4
5.0 Composition Requirements	5
6.0 Quality Requirements.....	5
7.0 Meltability, Stretchability and Free fat Characteristics	7
8.0 Test Methods.....	7
9.0 Official Identification	7
10.0 Explanation of Terms.....	7

1.0 Scope

The USDA Specifications for Mozzarella Cheeses includes Mozzarella, Low-moisture Mozzarella, Part-skim Mozzarella, Low-moisture Part-skim Mozzarella, and Lite Mozzarella Cheeses. The Cheeses may be in Loaf, Sliced, Shredded, or Diced forms.

2.0 Plant Requirements

Mozzarella cheeses shall be manufactured and packaged in plants inspected by the AMS, Dairy Grading Branch and eligible for listing in the “Dairy Plants Surveyed and Approved for USDA Grading Service” publication.

3.0 Product age and Temperature Requirements

Mozzarella cheeses shall be aged no less than 5 days at 38° F to 42° F (3.5° C to 5.5° C) prior to inspection unless the cheese is shredded or diced and frozen. If the shredded or diced cheese is not frozen immediately after manufacture, the cheese shall be stored at 38° F to 42° F (3.5° C to 5.5° C) until frozen.

4.0 Regulatory Requirements

- Mozzarella cheese shall comply with all applicable Federal regulations including those contained in 21 CFR Part 133.155 for Mozzarella cheese.
- Low-moisture Mozzarella cheese shall comply with all applicable Federal regulations contained in 21 CFR 133.156.
- Part-skim Mozzarella cheese shall comply with all applicable Federal regulations contained in 21 CFR Part 133.157.
- Low-moisture part-skim Mozzarella cheese shall comply with all applicable Federal regulations contained in 21 CFR Part 133.158.
- Lite Mozzarella cheese shall comply with all applicable Federal regulations including those contained in 21 CFR Part 133.155 for mozzarella cheese, 21 CFR Part 101.56 for nutrient content claims for “light” or “lite”, 21 CFR Part 101.13 for general principles for nutrient content claims, and 21 CFR Part 130.10 for foods named by use of a nutrient content claim and a standardized term.
- Shredded Mozzarella cheeses shall also comply with 21 CFR Part 133.146 for grated cheeses.

5.0 Composition Requirements

Samples of shredded or diced, frozen Mozzarella cheeses shall be taken prior to tempering.

Mozzarella cheese

- *Milk fat* - not less than 45% on dry basis.
- *Moisture* – more than 52% but not more than 60%.
- *pH* – not less than 5.1 and not more than 5.4.

Low-moisture Mozzarella cheese

- *Milk fat* - not less than 45% on dry basis.
- *Moisture* – more than 45% but not more than 52%.
- *pH* – not less than 5.1 and not more than 5.4.

Part-skim Mozzarella cheese

- *Milk fat* - less than 45% but not less than 30% on dry basis.
- *Moisture* – more than 52% but not more than 60%.
- *pH* – not less than 5.1 and not more than 5.4.

Low-moisture Part-skim Mozzarella cheese

- *Milk fat* - less than 45% but not less than 30% on dry basis.
- *Moisture* – more than 45% but not more than 52%.
- *pH* – not less than 5.1 and not more than 5.4.

Lite Mozzarella Cheese

- *Milk fat* - not less than 10.8% on dry basis.
- *Moisture* – not less than 52% and not more than 60%.
- *pH* – not to exceed 5.3.

6.0 Quality Requirements

Flavor

Mozzarella Cheeses shall have a mild, pleasing flavor and may possess slight acid or feed flavors. The flavor should be absent whey taint, sour notes, heated or off notes associated with the use of non-fat dry milk. Vinegar flavor will not be acceptable.

Body and Texture

Loaf Mozzarella cheeses and Sliced Mozzarella cheeses

A plug drawn from loaf Mozzarella cheeses or a slice from sliced Mozzarella cheeses shall be flexible, smooth and pliable and where sliced the slices shall separate easily. The cheeses shall not possess sweet holes or be gassy.

Shredded or Diced Mozzarella cheeses

Shredded or diced Mozzarella cheeses shall be loose and free from clumps except those that readily break up with slight pressure. The cheeses shall be free flowing and shall not be matted. An approved anticaking agent may be added as a processing aid. If an anticaking agent is used, the amount used shall be the minimum required to produce the desired effect, but shall not exceed 2.0 percent of the weight of the shredded cheeses.

Mozzarella cheeses may possess body and texture characteristics outlined in Table I:

Table I. Classification of Body and Texture Defects

Body and Texture Characteristics	Mozzarella or low-moisture Mozzarella			Part-skim or low-moisture part-skim Mozzarella			Lite Mozzarella		
	loaf	sliced	shredded diced	loaf	sliced	shredded diced	loaf	sliced	shredded diced
Open	S	S	----	S	S	----	S	S	----
Mealy	S	S	S	S	S	S	S	S	S
Coarse	S	S	S	----	S	S	----	----	S
Pasty	S	S	S	----	S	S	----	S	S
Lacking Flexibility	D	----	----	S	----	----	S	----	----
Weak	D	D	S	S	S	S	S	S	S
Sticky	----	----	----	----	----	----	S	S	S
Rubbery	----	----	----	----	----	----	S	S	S

S = Slight
D = Definite
---- = Not allowed

Color and Appearance

Mozzarella cheeses shall have a natural white to light cream, uniform bright color, and attractive sheen. It may be wavy to a very slight degree, and may have a slight color variation due to salt penetration.

Shred and Dice Size

- Shredded Mozzarella cheeses shall have a height and width up to 3/16 inch in either dimension.
- Diced Mozzarella cheeses shall have all dimensions of the dice relatively equal.

Fines

Shredded Mozzarella cheeses shall not contain more than 6.0 percent fines.

For shreds whose height and/or width is 1/16 inch or less, the fines content shall be determined using a Standard Test Sieve #14 (1.4 mm). For shreds whose height and/or width is greater than 1/16 inch, the fines content shall be determined using a Standard Test Sieve #8 (2.36 mm).

Note: The manufacturer shall provide shred size information. This information will determine the sieve used to measure the fines content. If shred size information is not provided, the Standard Test Sieve #8 will be used.

7.0 Meltability, Stretchability and Free fat Characteristics

The cheese shall melt completely and evenly distributed over the surface of the crust on which it is spread. There should be no blisters. The cheese should have an even, slighter darker cheese color than the cheese before cooking. The melted cheese may be chewy, but not gummy. There should be no burnt areas. The cheese should be stringy and should not break. There shall be no free fat drippage when a slice is made and held at a slight angle.

8.0 Test Methods

All test methods, shall be made in accordance with test methods published in the latest revision of the "Official Methods of Analysis of the Association of Official Analytical Chemists," methods published in the latest revision of "Standard Methods for the Examination of Dairy Products," or methods published by the International Dairy Federation. The meltability, stretchability and free fat content shall be determined by the methods contained in the latest revision of DA Instruction 918-RL, Laboratory Methods and Procedures, USDA/AMS/Dairy Programs, Dairy Grading Branch.

9.0 Official Identification

Mozzarella cheeses officially inspected and found to meet these requirements may be identified with the official USDA Quality Approved Inspection Shield.

10.0 Explanation of Terms

A. With respect to flavor

1. *Slight*. An attribute which is barely identifiable and present only to a small degree.
2. *Acid*. Sharp and pucker to the taste, characteristic of lactic or acetic acid.
3. *Feed*. Feed flavors (such as alfalfa, sweet clover, silage, or similar feed) in milk carried through into the cheese.

B. With respect to body and texture

1. *Slight*. An attribute which is barely identifiable and present only to a small degree.
2. *Definite*. An attribute which is readily identifiable and present to a substantial degree.
3. *Coarse*. Feels rough, dry and sandy.
4. *Gassy*. Gas holes of various sizes and may be scattered.
5. *Flexible*. The plug may be bent without braking.
6. *Lacking Flexibility*. The plug tends to break when bent.
7. *Mealy*. Short body, does not mold well, and looks and feels like corn meal when worked between the thumb and fingers.
8. *Open*. Includes mechanical openings that are irregular in shape and those holes that are caused by trapped air or steam during the procedure.
9. *Pasty*. Weak body, and when the cheese is worked between the thumb and fingers, it becomes sticky and smeary.
10. *Plug*. The cheese drawn from a loaf of cheese using a number 8 cheese trier.
11. *Rubbery*. The cheese returns to its original shape after definite pressure on the plug, slice, or shred.
12. *Sticky*. Slices or shreds that do not separate easily or cheese that adheres to the knife when a loaf is sliced.
13. *Sweet hole*. Spherical gas holes, glossy in appearance; usually about the size of BB shots.
14. *Weak*. Requires little pressure to crush, is soft, but is not necessarily sticky like pasty cheese.

C. With respect to color

1. *Very slight*. An attribute which is detected only upon critical examination and present only to a minute degree.

2. *Wavy*. Unevenness of color which appears as layers or waves.

D. With respect to meltability, stretchability and free fat characteristics.

1. *Chewy*. The cheese is slightly rubbery but breaks down quickly when chewed.
2. *Gummy*. The cheese does not readily break down when chewed.