Dry Buttermilk (DBM) Standard

Product Definition

Dry Buttermilk (DBM) is obtained by drying liquid buttermilk that was derived from the churning of butter and pasteurized prior to condensing. Dry Buttermilk contains at least 30.0% protein.

Dry Buttermilk complies with all provisions of the U.S. Federal Food, Drug, and Cosmetic Act.

See the separate ADPI standard for Dry Buttermilk Product (DBMP) for product that contains less than 30.0% protein.

Composition of Extra Grade Dry Buttermilk

Extra Grade is so designated to indicate the highest quality of Dry Buttermilk. In addition to meeting the established USDA General Grading Requirements, it shall meet the following specifications:

Parameter	Units of Measure	Spray Dried	Atmospheric Roller Dried
		Limits	Limits
Protein	%	30.0 minimum	
Fat	%	4.5 minimum	
Total moisture	%	4.0 maximum	
Scorched particles[1]	mg/25g	15.0 maximum	22.5 maximum
Titratable acidity[1]	%	0.10 – 0.18	
Solubility index[1]	mL	1.25 maximum	15.0 maximum

1 - Scorched particles, titratable acidity, and solubility index requirements ordinarily appear in ADPI Standards in the section defining Other Characteristics, but they are included here because they are integral to the established USDA requirements for Extra Grade.

Other Characteristics of Extra Grade Dry Buttermilk

Physico-chemical Properties			
Parameter	Units of Measure	Spray Dried	Atmospheric Roller Dried
		Limits	Limits
Color and appearance	visual	uniform color, cream to light brown; free from lumps that do not break up under slight pressure	
Flavor	sensory	sweet and pleasing flavor; no unnatural or offensive odors	

Microbiological Analysis			
Parameter	**Units of Measure**	**Spray Dried**	**Atmospheric Roller Dried**
		Limits	**Limits**
Standard plate count	CFU/g	20,000 maximum	
Coliforms	CFU/g	10 maximum	

Composition of Standard Grade Dry Buttermilk

Standard Grade includes Dry Buttermilk that fails in one or more particulars to meet the requirements of Extra Grade, but which meets the following specifications:

Parameter	**Units of Measure**	**Spray Dried**	**Atmospheric Roller Dried**
		Limits	**Limits**
Protein	%	30.0 minimum	
Fat	%	4.5 maximum	
Total moisture	%	5.0 maximum	
Scorched particles[2]	mg/25g	22.5 maximum	32.5 maximum
Titratable acidity[2]	%	0.10 – 0.20	
Solubility index[2]	mL	1.25 maximum	15.0 maximum

2 - Scorched particles, titratable acidity, and solubility index requirements ordinarily appear in ADPI Standards in the section defining Other Characteristics, but they are included here because they are integral to the established USDA requirements for Standard Grade.

Other Characteristics of Standard Grade Dry Buttermilk

Physico-chemical Properties			
Parameter	**Units of Measure**	**Spray Dried**	**Atmospheric Roller Dried**
		Limits	**Limits**
Appearance	visual	free from lumps that do not break up under slight pressure	
Flavor	sensory	fairly pleasing flavor; may possess slight unnatural flavor and have no offensive flavors	

Microbiological Analysis			
Parameter	**Units of Measure**	**Spray Dried**	**Atmospheric Roller Dried**
		Limits	**Limits**
Standard plate count	CFU/g	75,000 maximum	
Coliforms	CFU/g	10 maximum	

Optional Test for Dry Buttermilk

Another test which may be made on any Dry Buttermilk (not mandatory for grade designation, but, if determined, must comply with the limits as indicated) is:

Parameter	Units of Measure	Spray Dried	Atmospheric Roller Dried
		Limits	Limits
Alkalinity of ash	mL 0.1 *N* HCl/100g	125 maximum	n/a

When it is determined that Dry Buttermilk:

1) fails to meet the requirements of Standard Grade[3];
2) fails to meet the requirements of the Optional Test, when such test has been made[3]; or
3) has been produced in a plant found on inspection to be using unsatisfactory manufacturing practices, equipment, or facilities, or to be operating under unsanitary plant conditions; or
4) has been produced in a plant which is not USDA approved;

then it shall not be assigned a grade.

3 - When tested in accordance with the standardized methods of analysis contained herein

Additional ADPI Specifications

ADPI imposes the following additional requirements on Dry Buttermilk:

Microbiological Analysis			
Parameter	Units of Measure	Spray Dried	Atmospheric Roller Dried
		Limits	Limits
Yeast and mold	CFU/g	100 maximum	
Enterobacteriaceae[4]	CFU/g	10 maximum	
Salmonella genus	CFU/sample[5]	not detected	
Staphylococcus (coagulase positive)	CFU/g	not detected[6]	
Listeria genus	CFU/g	not detected	

4 - The food industry is trending toward *Enterobacteriaceae* ("EB") as the most commonly used category of indicator organisms for gauging general process sanitation. For compliance with this Standard, coliforms shall be utilized for compliance with the USDA Grade requirements, while EB may be used at the discretion of the manufacturer.

5 - Typical minimum sample size for *Salmonella* testing is 25 g, but the exact sample size and methodology is left to the discretion of the manufacturer.

6 - Where the effective limit of quantitation for the test is 10 CFU/g (such as when a dilution factor of 10 is applied) then the test result must be not detected in order to comply with this Standard. Where the testing method is capable of quantifying microbial counts below 10 CFU/g, then a compliant result must be a value less than 10 CFU/g.

Permissible Additives

Dry Buttermilk may not contain, or be derived from:

- Nonfat dry milk;
- Dry whey;
- Products other than buttermilk.

Added preservatives, neutralizing agents, and other chemicals are not permitted in Dry Buttermilk.

Methods of Analysis

Parameter	Reference Method
Protein	AOAC 991.20 (N x 6.38)
Fat	AOAC 989.05
Total moisture	AOAC 925.45
Scorched particles	ADPI
Titratable acidity	AOAC 947.05
Alkalinity of ash	AOAC 941.07
Standard plate count	SMEDP
Coliforms	SMEDP
Yeast and mold	FDA BAM
Enterobacteriaceae	FDA BAM
Salmonella	AOAC
Staphylococcus	AOAC
Listeria	FDA BAM

Product Labeling

Recommended identifications: Dry Buttermilk

Typical Applications

Dry Buttermilk is typically used in bakery products, frozen desserts, prepared dry mixes, beverages, cheese products, frozen foods, dairy products, salad dressings, snack foods, and others.

Typical Storage & Shipping

Product should be stored, shipped, and utilized according to the manufacturer's established recommendations. As guidance, product should be stored and shipped in a cool, dry environment with temperature below 80°F and relative humidity below 65%. Stocks should be rotated and utilized in accordance with the manufacturer's established date of expiration or retest.

Typical Packaging

Multiwall kraft bags with polyolefin inner liner, or other suitable closed containers (e.g., totes) are typical.

Revision History

This Standard is a legacy document and has been assigned prior version numbers on an *ex post facto* basis, according to its documented history of modifications, in order to comply with our new document control features and format. Full revision history is on file at ADPI and is available for query via info@adpi.org or by directly contacting the Vice President of Technical Services.

Current version details:

Version	Effective Date	Notes
3.0	07/06/2023	Migrated this Standard to the new modernized format as authorized by the ADPI Standards Committee. No previously established test parameters or limits were materially altered by this update. A reference to related ingredient standard Dry Buttermilk Product was added to the Product Definition section. Prohibited ingredients were migrated out of the Product Definition section and into the Permissible Additives section that is provided in the modernized format, following the verbiage previously reviewed by the ADPI Standards Committee. Deleted the erroneous reference to Nonfat Dry Milk in the compositional requirements for Extra Grade Dry Buttermilk. Footnotes added in multiple sections, explaining: positioning of the scorched particles out of order as established by the new modernized format; optional nature of EB testing; sample size discretion for *Salmonella* testing; and the restatement of the limit for coagulase positive *Staphylococcus*. Added test method references for all parameters not already covered in version 2.0.