Dry Whey Standard

Product Definition

Whey is the liquid substance obtained by separating the coagulum from milk, cream, or skim milk in cheesemaking. Dry Whey is the substance obtained by the removal of water from whey, while leaving all other constituents in the same relative proportions as in whey.

Dry Sweet Whey shall have not greater than 0.16% titratable acidity on a reconstituted basis. Dry Acid Whey shall have greater than 0.35% titratable acidity on a reconstituted basis.

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

Composition of Extra Grade Dry Whey

Parameter	Units of Measure	Dry Sweet Whey	Dry Acid Whey
		Limits	Limits
Fat	%	1.5 maximum	
Total moisture	%	5.0 maximum	
Scorched particles[1]	mg/25g	15.0 maximum	
Titratable acidity[2]	%	0.16 maximum	0.35 minimum

1 - Scorched particles 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.

2 - Titratable acidity is not part of the basis for grade determination but is included only to differentiate between sweet-type and acid-type whey products.

Other Characteristics of Extra Grade Dry Whey

Physico-chemical Properties			
Parameter	Units of Measure	Dry Sweet Whey	Dry Acid Whey
		Limits	Limits
Color and appearance	visual	uniform color, off-white to cream; free-flowing, free from lumps that do not break up under slight pressure; practically free from visible dark particles	
Flavor	sensory	normal whey flavor, free from undesirable flavors, but may possess the following flavors to a slight degree: bitter, fermented, storage, and utensil; and the following to a definite degree: feed and weedy	

Microbiological Analysis			
Parameter	Units of Measure	Dry Sweet Whey	Dry Acid Whey
		Limits	Limits
Standard plate count	CFU/g	30,000 maximum	
Coliforms	CFU/g	10 maximum	

Optional Tests for Extra Grade Dry Whey

Other tests which may be made on Dry Whey products (not mandatory for grade designation, but, if determined, must comply with the limits as indicated) are:

Parameter	Units of Measure	Dry Sweet Whey	Dry Acid Whey
		Limits	Limits
Protein	%	11 minimum	
Alkalinity of ash	mL 0.1 *N* HCl/100g	225 maximum	n/a

When it is determined that Dry Whey:

1) fails to meet the requirements of Extra Grade[3];
2) fails to meet the requirements of any 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;

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 Whey:

Microbiological Analysis			
Parameter	**Units of Measure**	**Dry Sweet Whey**	**Dry Acid Whey**
		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	

(See footnotes on the following page.)

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 Extra 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.

Codex Alimentarius Specifications for Dry Whey

Codex requirements for Dry Whey are as follows:

Parameter	**Units of Measure**	**Dry Sweet Whey**	**Dry Acid Whey**
		Limits	**Limits**
Protein	%	11 minimum	7 minimum
Moisture	%	5.0 maximum	4.5 maximum
Lactose	%	65 minimum	n/a
Ash	%	8.5 maximum	15.0 maximum
Titratable acidity	% pH	0.16 maximum 6.0 minimum	0.35 minimum 5.1 maximum

Permissible Additives

Dry Whey may be pH adjusted with an appropriate mineral or organic acid or base. Any pH adjustment agent used for this purpose shall be food grade and shall be used in accordance with U.S. current Good Manufacturing Practices and in accordance with its GRAS status, where applicable.

Preservatives are not permitted in Dry Whey.

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 Sweet Whey

Dry Acid Whey

Dry Whey ___% titratable acidity

for Dry Whey over 0.16%, but below 0.35%, titratable acidity on a reconstituted basis; where the titratable acidity is declared as the actual percentage, and where the supporting analysis must also be supplied.

Typical Applications

Dry Sweet Whey is typically used in bakery products, process cheese products, frozen desserts, sauces, meat emulsions, salad dressings, beverages, confections, gravies, soups, meat products, snack foods, and others.

Dry Acid Whey is typically used in bakery products, prepared dry mixes, dry blends, salad dressings, snack foods, frozen desserts (sherbets), 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
4.0	07/04/2023	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. Authorization to use additives for pH adjustment was 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; prohibition against use of preservatives also migrated to this section. Footnotes added in multiple sections, explaining: positioning of the scorched particles out of order as established by the new modernized format; exclusion of titratable acidity from grading requirements for Extra Grade; 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 3.0.