Whole Milk Powder (WMP) Standard

Product Definition

Whole Milk Powder (WMP) is the product resulting from the partial removal of water from pasteurized milk. The fat and/or protein content of the milk may have been adjusted, only to comply with the compositional requirements below, by the addition and/or withdrawal of milk constituents in such a way as not to alter the casein-to-whey protein ratio of the milk being adjusted. Milk products permitted for such adjustment purposes are defined in the Permissible Additives section of this Standard.

Whole Milk Powder complies with all provisions of the U.S. Federal Food, Drug, and Cosmetic Act.

Composition

Parameter	Units of Measure	Limits
Protein	%, solids non-fat basis[1]	34.0 minimum
Fat	%	26.0 – 42.0
Moisture[2]	%	4.5 maximum

1 - Solids non-fat includes lactose water of crystallization.

2 - Moisture content does not include lactose water of crystallization.

Other Characteristics

Physico-chemical Properties		
Parameter	**Units of Measure**	**Limits**
Scorched particles	mg/25g	15.0 maximum
Titratable acidity	%	0.18 maximum
Solubility index	mL	1.0 maximum
Color	visual	white to cream
Flavor	sensory	bland, clean

Microbiological Analysis		
Parameter	**Units of Measure**	**Limits**
Standard plate count	CFU/g	30,000 maximum
Yeast and mold	CFU/g	100 maximum
Coliforms[3]	CFU/g	10 maximum
Enterobacteriaceae[3]	CFU/g	10 maximum
Salmonella	CFU/sample[4]	not detected
Staphylococcus (coagulase positive)	CFU/g	not detected[5]

3 - The food industry is trending toward *Enterobacteriaceae* ("EB") as the most commonly used category of indicator organisms for gauging general process sanitation. For compliance to this Standard, either coliforms and/or EB shall be utilized, at the discretion of the manufacturer.

4 - 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.

5 - 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

The protein content of milk used to manufacture Whole Milk Powder may be adjusted ("standardized") by the addition of the following milk products only:

- Milk retentate: the product obtained by concentrating milk protein by ultrafiltration of milk, reduced fat milk, or skim milk;
- Milk permeate: the product obtained by removing milk proteins and milkfat from milk, reduced fat milk, or skim milk by ultrafiltration; and
- Lactose.

Methods of Analysis

Parameter	Reference Method
Protein	ISO 8698-1 / IDF 20 part 1
Fat	ISO 1736 / IDF 9C
Moisture	ISO 5537 / IDF 26
Scorched particles	ISO 5739 / IDF 107
Titratable acidity	ISO 6091 / IDF 86
Solubility index	ISO 8156 / IDF 129
Microbiological tests	FDA BAM

Product Labeling

Recommended identification: Whole Milk Powder

Typical Applications

Whole Milk Powder is typically used in confectionery, bakery products, packaged dry mixes, dairy products, soups, sauces, frozen foods, beverages, and others.

The protein adjustment which is permitted for Whole Milk Powder is optional. Product manufactured without this adjustment, and in compliance with all other U.S. requirements, is equivalent in composition to Dry Whole Milk, and it may be utilized in U.S. standardized foods where Dry Whole Milk is specified by the corresponding Standard of Identity (SOI).

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 should 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.

External Reference

This ADPI Standard was created to align with the analogous whole milk powder definition in *Codex Standard for Milk Powders and Cream Powder*, CODEX STAN 207-1999, and with the test methods dictated by *Recommended Methods of Analysis and Sampling*, CODEX STAN 234-1999, 2015 amendment. Care should be taken to confirm the Codex requirements have not been changed since the effective date of this Standard, in circumstances where Codex requirements govern.

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:

Current Version	Effective Date	Notes
3.0	07/07/2023	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 protein adjustment purposes ("standardization") 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. Footnotes added in multiple sections, explaining inclusion or exclusion of lactose water of crystallization in solids non-fat and in moisture; sample size discretion for *Salmonella* testing and the restatement of the limit for coagulase positive *Staphylococcus*. Inserted an External Reference section to document the Codex definitions and test methods that inform this Standard. Added test method references for all parameters not already covered in version 2.0.