



Instant Dry Whole Milk (iDWM) Standard

Product Definition

Instant Dry Whole Milk (iDWM) is Dry Whole Milk that has been produced in such a way as to substantially improve its dispersion and reconstitution properties over that produced by the conventional processes. Instant Dry Whole Milk contains not less than 26% but not more than 40% milkfat (by weight) on an “as is” basis and not more than 4.5% moisture (by weight) on a milk solids-non-fat (SNF) basis. Optionally, Instant Dry Whole Milk may be fortified with either vitamins A or D, or both.

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

See the separate ADPI standard for [Dry Whole Milk \(DWM\)](#) for conventional, non-instantized product.

Composition of Extra Grade Instant Dry Whole Milk

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

Parameter	Units of Measure	Limits
Fat	% (w/w)	26.0 – 40.0
Total moisture	% (w/w, SNF basis)	4.5 maximum
Scorched particles ¹	mg/25g	15.0 maximum
Titrateable acidity ¹	%	0.15 maximum
Solubility index ¹	mL	1.0 maximum

¹ - Scorched particles, titrateable 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 Instant Dry Whole Milk

Physico-chemical Properties		
Parameter	Units of Measure	Limits
Dispersibility	%	85 minimum
Color and appearance	visual	white or light cream; free from lumps that do not break up under slight pressure; practically free from visible dark particles; free from graininess when reliquefied
Flavor	sensory	sweet, pleasing and desirable; may possess a slight feed flavor and a definite cooked flavor; free from undesirable flavors

Microbiological Analysis		
Parameter	Units of Measure	Limits
Standard plate count	CFU/g	10,000 maximum
Coliforms	CFU/g	10 maximum

Optional Tests for Instant Dry Whole Milk

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

Parameter	Units of Measure	Limits
Direct microscopic clump (DMC) count	count/g	100 million maximum
Oxygen content (for gas packed product)	%	3 maximum
Protein	%	for information
Copper (Cu) ²	ppm	1.5 maximum
Iron (Fe) ²	ppm	1.0 maximum

2- Not relevant when oxygen content meets the defined requirement.

When tested, oxygen content will be shown on the grading certificates as follows:

- Not more than 2% oxygen; or
- Not more than 3% oxygen; or
- Oxygen content ___%

When tested, protein content will be shown on the grading certificates as follows:

- Protein content ___%

When it is determined that Instant Dry Whole Milk:

- 1) fails to meet the requirements of Extra Grade³;
- 2) fails to meet the requirements of the Optional Test, when such test has been made³; or
- 3) has been produced in a plant that is rated ineligible for USDA grading service or 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 Instant Dry Whole Milk:

Microbiological Analysis		
Parameter	Units of Measure	Limits
Yeast and mold	CFU/g	100 maximum
<i>Enterobacteriaceae</i> ⁴	CFU/g	10 maximum
<i>Salmonella</i> genus	CFU/sample ⁵	not detected
<i>Staphylococcus</i> (coagulase positive)	CFU/g	not detected ⁶
<i>Listeria</i> 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

Instant Dry Whole Milk may be fortified with vitamin A and/or vitamin D, provided that each quart of the resulting fluid milk, reconstituted in accordance with the label directions, conforms to the following fortified content requirements, as appropriate:

Parameter	Units of Measure	Content
Vitamin A	IU	2000
Vitamin D	IU	400

Methods of Analysis

Parameter	Reference Method
Fat	AOAC 989.05
Total moisture	AOAC 925.45
Scorched particles	ADPI
Titrateable acidity	AOAC 947.05
Solubility index	SMEDP
Dispersibility	Modified Moats – Dabbah method
Standard plate count	SMEDP
Coliforms	SMEDP
Direct microscopic clump (DMC) count	SMEDP
Oxygen	AOAC
Protein	AOAC
Copper (Cu)	AOAC
Iron (Fe)	AOAC
Yeast and mold	FDA BAM
<i>Enterobacteriaceae</i>	FDA BAM
<i>Salmonella</i>	AOAC
<i>Staphylococcus</i>	AOAC
<i>Listeria</i>	FDA BAM

Product Labeling

Recommended identifications: Instant Dry Whole Milk ___% milkfat

where the actual milkfat content is declared

Instant Dry Whole Milk ___% milkfat, fortified with vitamin(s) _____

where the vitamins are stated

Typical Applications

Instant Dry Whole Milk is typically used in confectionery, bakery products, packaged dry mixes, dairy products, soups, sauces, frozen foods, beverages, 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:

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. A reference to the related ingredient standard for Dry Whole Milk was added to the Product Definition section. 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 <i>Salmonella</i> testing; and the restatement of the limit for coagulase positive <i>Staphylococcus</i> . Included mention of oxygen less than 2% as a possible outcome of testing that could be reported on grading certificates. Added test method references for all parameters not already covered in version 2.0.