# Milk Whey Protein Standard

## Product Definition

Milk Whey Protein is obtained from bovine milk or skim milk by the removal of casein and non-protein constituents from milk so that the finished dry product contains not less than 25% protein. It is obtained by microfiltration and/or chromatography of milk or skim milk and may be preceded or followed by ultrafiltration, nanofiltration, evaporation, dialysis, or any other safe and suitable process in which all or part of the lactose, minerals and moisture may be removed.

Milk Whey Protein cannot be produced through any process or combination of processes that include enzymatic coagulation of protein and/or acid precipitation of protein in bovine milk or skim milk.

Milk Whey Protein products with a protein content less than 89.5% are referred to as Milk Whey Protein Concentrates (mWPC).

Milk Whey Protein products with a protein content greater than or equal to 89.5% on a dry matter basis are referred to as Milk Whey Protein Isolates (mWPI).

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

## Composition

| Parameter | Units of Measure | Limits | | |
|---|---|---|---|---|
| | | mWPC 34 | mWPC 80 | mWPI |
| Protein[1] | %, as-is basis | 33.5 minimum | 79.5 minimum[1] | 89.5 minimum[1] |
| Fat | %, as-is basis | 2.0 maximum | 2.0 maximum | 1.5 maximum |
| Lactose | %, as-is basis | 55.0 maximum | 13.0 maximum | 4.0 maximum |
| Moisture | %, as-is basis | 6.0 maximum | 6.0 maximum | 6.0 maximum |
| Ash | %, as-is basis | 7.50 maximum | 5.0 maximum | 4.5 maximum |

1 - For mWPC 80 and mWPI the protein content and limit are on the dry basis instead of the as-is basis.

## Other Characteristics

| Physico-chemical Properties | | |
|---|---|---|
| **Parameter** | **Units of Measure** | **Limits** |
| Scorched particles | mg/25g | 15.0 maximum |
| Color | visual | 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 | 10 maximum |
| Coliforms[2] | CFU/g | 10 maximum |
| *Enterobacteriaceae*[2] | CFU/g | 10 maximum |
| *Salmonella* genus | CFU/sample[3] | not detected |
| *Listeria* genus | CFU/g | not detected |

2 - 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, either coliforms and/or EB shall be utilized, at the discretion of the manufacturer.

3 - 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.

## Methods of Analysis

| Parameter | Reference Method |
|---|---|
| Protein | SMEDP 15.132 |
| Fat | AOAC 989.05 |
| Lactose | SMEDP 15.092 |
| Moisture | AOAC 927.05 |
| Ash | AOAC 900.02 |
| Scorched particles | ADPI |
| Standard plate count | AOAC 966.23 |
| Coliforms | AOAC 989.10 |
| All other microbiological tests | FDA BAM |

## Product Labeling

Recommended identifications:

Milk Whey Protein

Milk Whey Protein Concentrate (___% protein)

where the % protein is either declared in 5% increments; or declared as the actual percentage[4] (e.g., mWPC 25); or optionally the % protein may be omitted entirely (only when the % protein is ≥ 79.5%).

Milk Whey Protein Isolate (___% protein)

where the % protein is either declared in 2% increments; or declared as the actual percentage[4] (e.g., mWPI 92); or optionally the % protein may be omitted entirely.

4 - When electing to incorporate the actual percentage protein content into the product identification, the supporting analysis for the protein content must also be supplied.

Alternative identifications:

Native Whey Protein

Milk Derived Whey Protein

Milk Soluble Protein

## Typical Applications

Milk Whey Protein is typically used as a protein supplement in general sports, adult, or medical nutrition; and for its functionality such as in yogurts and puddings (gelation), toppings and fillings (whipping), meat and sausage (water binding), ice cream, margarine, and mayonnaise (emulsification); 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

| Current Version | Effective Date | Notes |
|---|---|---|
| 1.0 | 12/05/2017 | First officially approved version of this new ingredient Standard. |
| 1.1 | 01/18/2018 | Only minor cosmetic changes made in order to incorporate the new Standard into the ADPI *Dried Dairy Ingredients Handbook*. |
| 2.0 | 07/03/2023 | 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, but this revision did require footnotes to clarify the restated units of measure for *Salmonella*; and the streamlined / restated details associated with incorporation of the percent protein into the recommended identifications. |