



# Beta-Lactoglobulin Standard

## Product Definition

Bovine Beta-Lactoglobulin is a protein isolated from either milk or fresh whey. A combination of different protein isolation technologies may be utilized for purification of the protein. Beta-Lactoglobulin complies with all provisions of the U.S. Federal Food, Drug, and Cosmetic Act.

## Composition

| Parameter          | Units of Measure | Beta-Lactoglobulin WPI |              | Beta-Lactoglobulin WPC |              |
|--------------------|------------------|------------------------|--------------|------------------------|--------------|
|                    |                  | Typical Values         | Limits       | Typical Values         | Limits       |
| Protein            | %, db            | 90 – 92                | 89.5 minimum | 34 – 80                | 33.5 minimum |
| Beta-lactoglobulin | % <sup>1</sup>   | -                      | 70 minimum   | -                      | 60 minimum   |
| Fat                | %                | 0.5 – 1.0              | 1.5 maximum  | -                      | 10 maximum   |
| Ash                | %                | 2.0 – 3.5              | -            | -                      | 10 maximum   |
| Lactose            | %                | 0.5 – 1.0              | -            | -                      | 60 maximum   |
| Total moisture     | %                | 4.0 – 5.0              | 6.0 maximum  | 4.0 – 5.0              | 6.0 maximum  |

1 - Beta-lactoglobulin units of measure are as a percentage of the protein content.

## Other Characteristics

| Physico-chemical Properties |                  |                      |
|-----------------------------|------------------|----------------------|
| Parameter                   | Units of Measure | Limits               |
| Scorched particles          | mg/25g           | 15.0 maximum         |
| pH                          | -                | 2.5 – 7.5            |
| Color                       | visual           | white to light cream |
| Flavor                      | sensory          | bland, clean         |

| Microbiological Analysis               |                         |                |
|----------------------------------------|-------------------------|----------------|
| Parameter                              | Units of Measure        | Limits         |
| Standard plate count                   | CFU/g                   | 30,000 maximum |
| Yeast & mold                           | CFU/g                   | 100 maximum    |
| Coliforms <sup>2</sup>                 | CFU/g                   | 10 maximum     |
| <i>Enterobacteriaceae</i> <sup>2</sup> | CFU/g                   | 10 maximum     |
| <i>Salmonella</i>                      | CFU/sample <sup>3</sup> | 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.

## Permissible Additives

Beta-Lactoglobulin 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.

## Methods of Analysis

| Parameter             | Reference Method       |
|-----------------------|------------------------|
| Protein               | AOAC 991.20 (N x 6.38) |
| Beta-lactoglobulin    | HPLC                   |
| Fat                   | AOAC 989.05            |
| Ash                   | AOAC 942.05            |
| Lactose               | ISO 22662 / IDF 198    |
| Total moisture        | AOAC 925.45            |
| Scorched particles    | ADPI                   |
| pH                    | USDA                   |
| Microbiological tests | FDA BAM                |

## Product Labeling

Recommended identifications:      Beta-Lactoglobulin  
                                                         Whey Protein Concentrate  
                                                         Whey Protein Isolate

## Typical Applications

Beta-Lactoglobulin is typically used in high protein beverages; ice cream; frozen yogurt; beverages; salad dressings; process cheese; gels; protein bars; 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*            | 10/01/2017     | First officially approved version of this new ingredient standard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 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. 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. This revision did incorporate footnotes to clarify the unit of measure for the beta-lactoglobulin content and for the restated unit of measure for <i>Salmonella</i> . |

\* - Assigned *ex post facto*