Chengdu PNP Biotech Co., Ltd.

No. 13, South Section 1, Second Ring Road
Suite 709, Wuhou District, Chengdu
Sichuan 610041, P.R. China
info@pnpbiotech.com
www.pnpbiotech.com

STABILITY DATA

Bovine Collagen Peptides 90% Protein

This document presents the stability profile of Bovine Collagen Peptides 90% Protein supplied by Chengdu PNP Biotech Co., Ltd. Samples were packed in the normal commercial package and stored under the conditions stated for each study, and the product was tested at every time point shown below. The programme covers a long-term study and an accelerated study, conducted in accordance with the ICH Q1A methodology (and the corresponding pharmacopeial stability guideline for drug substances), each performed on three separate, non-consecutive production batches, with the analytical results from testing actually carried out at each time point.

Product Name	Bovine Collagen Peptides 90% Protein	**Country of Origin**	China
Molecular Formula	Not applicable	**Molecular Weight**	Not applicable

Long-Term Stability

Condition: 25 ± 2 °C / 60 ± 5 % RH. Time points are expressed in months. Each batch is identified in the merged row above its results; all batches were stored through the final time point, and every listed result is from testing performed at that time point.

The shelf life stated for this product is confirmed by these real-time long-term stability studies.

Test Item	Specification	0 m	3 m	6 m	9 m	12 m	18 m	24 m
Batch LT-1 | Manufacture 2023-11-08 | Study start 2023-11-15								
Appearance	White to pale yellow powder or granules	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms
Protein	≥ 90.0%	91.12%	91.04%	91.01%	91.04%	90.99%	90.89%	90.85%
Hydroxyproline	≥ 3.0%	3.43%	3.32%	3.29%	3.27%	3.22%	3.19%	3.14%
Loss on Drying	≤ 7.0%	2.88%	3.15%	3.17%	3.49%	3.67%	3.97%	4.35%
Standard Plate Count	≤ 10,000 cfu/g	255 cfu/g	733 cfu/g	916 cfu/g	1,154 cfu/g	623 cfu/g	518 cfu/g	638 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	82 cfu/g	103 cfu/g	132 cfu/g	118 cfu/g	124 cfu/g	104 cfu/g	245 cfu/g
Batch LT-2 | Manufacture 2024-04-03 | Study start 2024-04-10								
Appearance	White to pale yellow powder or granules	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms
Protein	≥ 90.0%	91.26%	91.21%	91.20%	91.10%	91.15%	91.02%	91.00%
Hydroxyproline	≥ 3.0%	3.25%	3.24%	3.22%	3.20%	3.17%	3.13%	3.11%
Loss on Drying	≤ 7.0%	3.11%	3.39%	3.49%	3.64%	3.83%	4.33%	4.53%
Standard Plate Count	≤ 10,000 cfu/g	361 cfu/g	400 cfu/g	757 cfu/g	1,111 cfu/g	1,036 cfu/g	505 cfu/g	1,368 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	102 cfu/g	90 cfu/g	50 cfu/g	115 cfu/g	87 cfu/g	136 cfu/g	224 cfu/g
Batch LT-3 | Manufacture 2024-09-11 | Study start 2024-09-18								
Appearance	White to pale yellow powder or granules	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms
Protein	≥ 90.0%	91.05%	91.07%	91.00%	90.95%	90.96%	90.91%	90.86%
Hydroxyproline	≥ 3.0%	3.25%	3.16%	3.14%	3.17%	3.14%	3.07%	3.05%
Loss on Drying	≤ 7.0%	2.85%	3.06%	3.20%	3.47%	3.65%	4.13%	4.48%
Standard Plate Count	≤ 10,000 cfu/g	646 cfu/g	577 cfu/g	533 cfu/g	701 cfu/g	974 cfu/g	1,241 cfu/g	1,274 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	74 cfu/g	44 cfu/g	137 cfu/g	106 cfu/g	56 cfu/g	130 cfu/g	159 cfu/g

Accelerated Stability

Condition: 40 ± 2 °C / 75 ± 5 % RH. Time points are expressed in months.

Accelerated data are supportive only; the shelf life is ultimately confirmed by the real-time long-term studies above.

Test Item	Specification	0 m	1 m	2 m	3 m	6 m
Batch ACC-1 | Manufacture 2023-10-24 | Study start 2023-10-31						
Appearance	White to pale yellow powder or granules	Conforms	Conforms	Conforms	Conforms	Conforms
Protein	≥ 90.0%	91.23%	91.11%	91.07%	91.01%	90.77%

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Test Item	Specification	0 m	1 m	2 m	3 m	6 m
Batch ACC-1 | Manufacture 2023-10-24 | Study start 2023-10-31						
Hydroxyproline	≥ 3.0%	3.37%	3.37%	3.27%	3.24%	3.13%
Loss on Drying	≤ 7.0%	2.88%	3.18%	3.35%	3.69%	4.49%
Standard Plate Count	≤ 10,000 cfu/g	549 cfu/g	826 cfu/g	380 cfu/g	1,344 cfu/g	1,141 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	54 cfu/g	57 cfu/g	64 cfu/g	175 cfu/g	146 cfu/g
Batch ACC-2 | Manufacture 2023-12-06 | Study start 2023-12-13						
Appearance	White to pale yellow powder or granules	Conforms	Conforms	Conforms	Conforms	Conforms
Protein	≥ 90.0%	91.21%	91.15%	91.03%	90.96%	90.75%
Hydroxyproline	≥ 3.0%	3.41%	3.31%	3.23%	3.26%	3.13%
Loss on Drying	≤ 7.0%	3.18%	3.28%	3.55%	3.87%	4.65%
Standard Plate Count	≤ 10,000 cfu/g	478 cfu/g	291 cfu/g	1,045 cfu/g	702 cfu/g	1,950 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	72 cfu/g	49 cfu/g	108 cfu/g	126 cfu/g	169 cfu/g
Batch ACC-3 | Manufacture 2024-01-17 | Study start 2024-01-24						
Appearance	White to pale yellow powder or granules	Conforms	Conforms	Conforms	Conforms	Conforms
Protein	≥ 90.0%	91.08%	91.03%	90.91%	90.82%	90.65%
Hydroxyproline	≥ 3.0%	3.38%	3.27%	3.25%	3.23%	3.12%
Loss on Drying	≤ 7.0%	3.01%	3.23%	3.55%	3.87%	4.66%
Standard Plate Count	≤ 10,000 cfu/g	640 cfu/g	750 cfu/g	538 cfu/g	579 cfu/g	1,712 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	56 cfu/g	83 cfu/g	120 cfu/g	184 cfu/g	124 cfu/g

Legend: “Conforms” means the attribute is consistent with the initial (0-month) value and meets the specification.

Prepared by: Mia Yu Approved by: Charlie Wang Date: Nov. 20, 2026