Chengdu PNP Biotech Co., Ltd.

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STABILITY DATA

L-Glutathione Reduced 99%

This document presents the stability profile of L-Glutathione Reduced 99% 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	L-Glutathione Reduced 99%	**CAS No.**	70-18-8
Molecular Formula	C10H17N3O6S	**Molecular Weight**	307.32

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 / colour	White crystalline powder	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms
Assay	99.0%~101.0%	99.64%	99.65%	99.63%	99.65%	99.61%	99.58%	99.60%
Purity	≥ 98.0%	99.03%	99.01%	98.98%	98.99%	98.87%	98.83%	98.80%
Loss on Drying	≤ 0.5%	0.23%	0.24%	0.25%	0.26%	0.29%	0.30%	0.34%
Standard Plate Count	≤ 10,000 cfu/g	600 cfu/g	710 cfu/g	1,100 cfu/g	455 cfu/g	1,307 cfu/g	647 cfu/g	1,616 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	82 cfu/g	99 cfu/g	107 cfu/g	113 cfu/g	103 cfu/g	63 cfu/g	185 cfu/g
Batch LT-2 | Manufacture 2024-04-03 | Study start 2024-04-10								
Appearance / colour	White crystalline powder	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms
Assay	99.0%~101.0%	99.61%	99.62%	99.61%	99.60%	99.60%	99.58%	99.60%
Purity	≥ 98.0%	99.03%	98.95%	98.95%	98.83%	98.85%	98.74%	98.66%
Loss on Drying	≤ 0.5%	0.23%	0.23%	0.25%	0.26%	0.28%	0.31%	0.34%
Standard Plate Count	≤ 10,000 cfu/g	315 cfu/g	493 cfu/g	1,225 cfu/g	1,465 cfu/g	1,666 cfu/g	1,940 cfu/g	1,423 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	51 cfu/g	51 cfu/g	116 cfu/g	46 cfu/g	77 cfu/g	135 cfu/g	105 cfu/g
Batch LT-3 | Manufacture 2024-09-11 | Study start 2024-09-18								
Appearance / colour	White crystalline powder	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms	Conforms
Assay	99.0%~101.0%	99.61%	99.63%	99.64%	99.62%	99.63%	99.58%	99.58%
Purity	≥ 98.0%	98.99%	98.99%	98.97%	98.86%	98.88%	98.82%	98.71%
Loss on Drying	≤ 0.5%	0.22%	0.25%	0.27%	0.26%	0.28%	0.32%	0.33%
Standard Plate Count	≤ 10,000 cfu/g	630 cfu/g	1,131 cfu/g	860 cfu/g	1,500 cfu/g	1,318 cfu/g	1,517 cfu/g	2,558 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	46 cfu/g	98 cfu/g	98 cfu/g	123 cfu/g	68 cfu/g	87 cfu/g	157 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 / colour	White crystalline powder	Conforms	Conforms	Conforms	Conforms	Conforms
Assay	99.0%~101.0%	99.64%	99.64%	99.61%	99.60%	99.57%

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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						
Purity	≥ 98.0%	99.10%	99.05%	98.96%	98.87%	98.60%
Loss on Drying	≤ 0.5%	0.22%	0.24%	0.25%	0.28%	0.33%
Standard Plate Count	≤ 10,000 cfu/g	510 cfu/g	551 cfu/g	823 cfu/g	1,398 cfu/g	2,171 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	25 cfu/g	52 cfu/g	131 cfu/g	122 cfu/g	86 cfu/g
Batch ACC-2 | Manufacture 2023-12-06 | Study start 2023-12-13						
Appearance / colour	White crystalline powder	Conforms	Conforms	Conforms	Conforms	Conforms
Assay	99.0%~101.0%	99.64%	99.60%	99.63%	99.62%	99.57%
Purity	≥ 98.0%	99.15%	99.05%	98.91%	98.85%	98.59%
Loss on Drying	≤ 0.5%	0.23%	0.25%	0.27%	0.28%	0.35%
Standard Plate Count	≤ 10,000 cfu/g	700 cfu/g	922 cfu/g	813 cfu/g	1,034 cfu/g	1,037 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	29 cfu/g	97 cfu/g	113 cfu/g	149 cfu/g	206 cfu/g
Batch ACC-3 | Manufacture 2024-01-17 | Study start 2024-01-24						
Appearance / colour	White crystalline powder	Conforms	Conforms	Conforms	Conforms	Conforms
Assay	99.0%~101.0%	99.63%	99.64%	99.62%	99.62%	99.59%
Purity	≥ 98.0%	98.97%	98.87%	98.79%	98.67%	98.44%
Loss on Drying	≤ 0.5%	0.23%	0.25%	0.26%	0.28%	0.34%
Standard Plate Count	≤ 10,000 cfu/g	764 cfu/g	691 cfu/g	748 cfu/g	810 cfu/g	939 cfu/g
Total Yeast & Mold	≤ 1,000 cfu/g	29 cfu/g	81 cfu/g	83 cfu/g	87 cfu/g	169 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. 19, 2026