



PrymaLab

PRYMALAB ANALYTICAL · IN-HOUSE LABORATORY

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CERTIFICATE NO.
PL-26-00044

VERIFICATION KEY
3FW32FFP

Scan or enter both at
prymalab.net/testing/verify

CERTIFICATE OF ANALYSIS · LOT RELEASE

Glutathione 1,500 mg

Lot PL-2609-044 · Lyophilized powder · Label claim 1500 mg/vial

TESTED IN-HOUSE BY PRYMALAB

In-house analytical result,
not an independent third-party test

LOT / BATCH NUMBER
PL-2609-044

DATE MADE
2026-09-18

DATE OF ANALYSIS
2026-09-19

DATE ISSUED
2026-10-03

RETEST / EXPIRY
2028-09-18

UNITS IN LOT / SAMPLED
250 / 2

STORAGE
-20 °C, desiccated, dark,
protected from air

CERTIFICATE TYPE
Lot COA, 2 pages

COMPOUND

Glutathione (reduced)

GSH; γ-L-glutamyl-L-cysteinyl-glycine

SEQUENCE

H-γGlu-Cys-Gly-OH (γ-glutamyl linkage; free thiol; free N- and C-termini)

CAS NUMBER

70-18-8

MOLECULAR FORMULA

$C_{10}H_{17}N_3O_6S$

THEORETICAL MASS (AVG.)

307.3 Da

PURITY · RP-HPLC, AREA %

99.12%

Specification 99.0% • main peak at 2.12 min

IDENTITY · OBSERVED MASS

307.5 Da

Theoretical 307.3 Da • +0.2 Da (650 ppm)

OVERALL CONCLUSION

PASS

Meets every specification for the tests performed

TEST	METHOD	SPECIFICATION	RESULT	CONCLUSION
Appearance	Visual inspection	White crystalline powder or lyophilized cake	White lyophilized cake	PASS
Identity (mass)	LC-MS, ESI positive	Theoretical ± 1.0 Da	307.5 Da (reduced free acid)	PASS
Purity	RP-HPLC, UV 214 nm, area%	99.0%	99.12%	PASS
Largest impurity	RP-HPLC, area%	1.0%	0.42% at 2.86 min (GSSG disulfide dimer)	PASS
Water content	Karl Fischer	5.0%	1.8%	PASS
Bacterial endotoxin	LAL, kinetic	≤ 5.0 EU/mg	0.03 EU/mg	PASS
Sterility / bioburden	USP <71>, membrane filtration	No growth after 14 days	No growth; conforms	PASS

1 HPLC CHROMATOGRAM

Data file: GSH_PL-2609-044_20260919_01 · Column C18 150 × 4.6 mm · UV 214 nm



**2 HPLC METHOD · GSH_PL-2609-044_20260919_01**

INSTRUMENT

Waters Alliance e2695, SN E2695B742

DETECTION WAVELENGTH

214 nm

MOBILE PHASE A

0.1% TFA in water

COLUMN TEMPERATURE

30 °C

SAMPLE DILUENT

Water, 0.1% TFA

REFERENCE STANDARD

In-house GSH reference, lot PL-RS-GSH-01, RT 2.10 min

DATA SYSTEM

Empower 3, Build 3471

COLUMN

C18, 150 × 4.6 mm, 3.5 µm

MOBILE PHASE B

0.1% TFA in MeCN

INJECTION VOLUME

20 µL

SAMPLE CONCENTRATION

0.5 mg/mL

DETECTOR

Waters 2998 PDA

COLUMN PART / SERIAL

186003326 / USHX18211

FLOW RATE

1.0 mL/min

RUN TIME

10 min

BLANK INJECTED

Yes

3 GRADIENT PROGRAM

TIME (MIN)	% A	% B
0.0	95	5
3.0	95	5
7.0	55	45
8.0	20	80
9.0	20	80
10.0	95	5

4 PEAK TABLE

PEAK	RT (MIN)	AREA	AREA %
1	2.12	4,262,160	99.12
2	2.86	18,060	0.42
3	3.58	12,040	0.28
4	4.36	7,740	0.18
Total		4,300,000	100.00

Threshold 0.05% area · Blank subtracted: Y · Purity = main peak area ÷ total integrated area × 100, to two decimals; main peak shaded.

5 IDENTITY BY MASS SPECTROMETRY

INSTRUMENT

Waters Acquity SQD

DECONVOLUTED MASS

307.5 Da

DATA FILE

GSH_PL-2609-044_MS_20260919_01

IONIZATION / MODE

ESI, positive

THEORETICAL MASS

307.3 Da

ACCEPTANCE

Within ± 1.0 Da

OBSERVED M/Z (CHARGE)

308.1 (1+ [M+H]) · 330.1 (1+ [M+Na])

DIFFERENCE

+0.2 Da (650 ppm)

6 ADDITIONAL TESTS

TEST	PERFORMED BY	DATE	REPORT / FILE
Water content	PrymaLab	2026-09-20	RPT-KF-PL-2609-044
Endotoxin	PrymaLab	2026-09-21	RPT-ET-PL-2609-044
Sterility	PrymaLab	2026-10-02	RPT-ST-PL-2609-044

A test with no row here was not performed on this lot. Outside-laboratory reports, when used, are attached and named below.

7 REVIEW AND APPROVAL**D. Reynolds**

Analyst · performed the testing
Date: 2026-09-19

S. Calloway

Reviewer · checked against raw data
Date: 2026-10-02

M. Phelps

Lab Director · approved for release
Date: 2026-10-03

Raw data retained at: Empower 3 (Build 3471), project PL-2609, archive PL-ARC-2026; 7 years. Outside laboratory reports attached: None

This certificate applies only to the lot named above and describes the units sampled from it; it is not a guarantee for any other lot. Results were obtained by PrymaLab LLC's own laboratory (PrymaLab Analytical) and are not an independent third-party test unless an outside report is attached. Reference values (CAS, formula, theoretical mass, sequence) are literature values for the named compound. Authenticity: scan the QR code or enter certificate number PL-26-00044 and key 3FW32FFP at prymalab.net/testing/verify; any copy that does not match the record shown there is not a PrymaLab certificate. PrymaLab LLC products are supplied for laboratory research use only and not for human or veterinary use.