Alpha Tides

CERTIFICATE OF ANALYSIS · LOT RELEASE

alphatides.net

CERTIFICATE NO.
PL-26-00044

VERIFICATION KEY
3FW32FFP

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

CERTIFICATE OF ANALYSIS · LOT RELEASE · ISSUED FOR ALPHA TIDES

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	DATE MADE	DATE OF ANALYSIS	DATE ISSUED
PL-2609-044	2026-09-18	2026-09-19	2026-10-03

RETEST / EXPIRY	UNITS IN LOT / SAMPLED	STORAGE	CERTIFICATE TYPE
2028-09-18	250 / 2	−20 °C, desiccated, dark, protected from air	Lot COA, 2 pages

COMPOUND	CAS NUMBER	MOLECULAR FORMULA	THEORETICAL MASS (AVG.)
Glutathione (reduced) GSH; γ-L-glutamyl-L-cysteinyl-glycine	70-18-8	$C_{10}H_{17}N_3O_6S$	307.3 Da

SEQUENCE

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

PURITY · RP-HPLC, AREA %
99.12%
Specification 99.0 % • main peak at 2.12 min

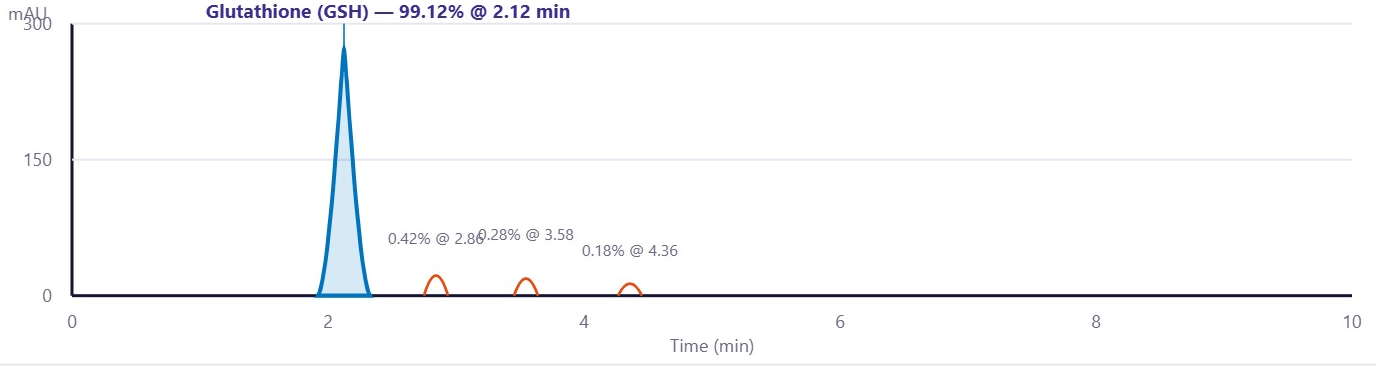
IDENTITY · OBSERVED MASS
307.5 Da
Theoretical 307.3 Da • +0.2 Da (650 ppm)

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



Baseline uncropped; main peak and impurities labeled with retention times. Peak table on page 2.

Verify: prymalab.net/testing/verify · PL-26-00044 · key 3FW32FFP

For laboratory research use only. Not for human or veterinary use.

2 HPLC METHOD · GSH_PL-2609-044_20260919_01

INSTRUMENT
Waters Alliance e2695, SN E2695B742

DATA SYSTEM
Empower 3, Build 3471

DETECTOR
Waters 2998 PDA

DETECTION WAVELENGTH
214 nm

COLUMN
C18, 150 × 4.6 mm, 3.5 µm

COLUMN PART / SERIAL
186003326 / USHX18211

MOBILE PHASE A
0.1% TFA in water

MOBILE PHASE B
0.1% TFA in MeCN

FLOW RATE
1.0 mL/min

COLUMN TEMPERATURE
30 °C

INJECTION VOLUME
20 µL

RUN TIME
10 min

SAMPLE DILUENT
Water, 0.1% TFA

SAMPLE CONCENTRATION
0.5 mg/mL

BLANK INJECTED
Yes

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

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

IONIZATION / MODE
ESI, positive

OBSERVED M/Z (CHARGE)
308.1 (1+ [M+H]) · 330.1 (1+ [M+Na])

DECONVOLUTED MASS
307.5 Da

THEORETICAL MASS
307.3 Da

DIFFERENCE
+0.2 Da (650 ppm)

DATA FILE
GSH_PL-2609-044_MS_20260919_01

ACCEPTANCE
Within ± 1.0 Da

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. This copy is issued for Alpha Tides, a distributor of the lot; the brand shown does not change the laboratory, the method or the results. 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.