REDACTED COA COPY

Supplier identifiers removed; analytical data unchanged.

In-house report; not an independent third-party test.

CERTIFICATE NUMBER
PL-26-00068

LOT / BATCH
PL-2609-068

CERTIFICATE OF ANALYSIS · LOT RELEASE

NAD+ 1,000 mg

Lot **PL-2609-068** · Lyophilized powder · Label claim **1000 mg/vial**

IN-HOUSE ANALYTICAL REPORT

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

LOT / BATCH NUMBER	DATE MADE	DATE OF ANALYSIS	DATE ISSUED
PL-2609-068	2026-09-17	2026-09-18	2026-10-03
RETEST / EXPIRY	**UNITS IN LOT / SAMPLED**	**STORAGE**	**CERTIFICATE TYPE**
2028-09-17	250 / 2	−20 °C, tightly sealed, dry, dark	Lot COA, 2 pages

COMPOUND	CAS NUMBER	MOLECULAR FORMULA	THEORETICAL MASS (AVG.)
NAD+ β-Nicotinamide adenine dinucleotide, oxidized (free acid); coenzyme, not a peptide	53-84-9	$C_{21}H_{27}N_7O_{14}P_2$	663.4 Da

STRUCTURE

Dinucleotide: adenosine 5'-monophosphate joined through a pyrophosphate bridge to nicotinamide 5'-mononucleotide; oxidized form.

PURITY · RP-HPLC, AREA %
99.81%
Specification 99.0% • main peak at 2.36 min

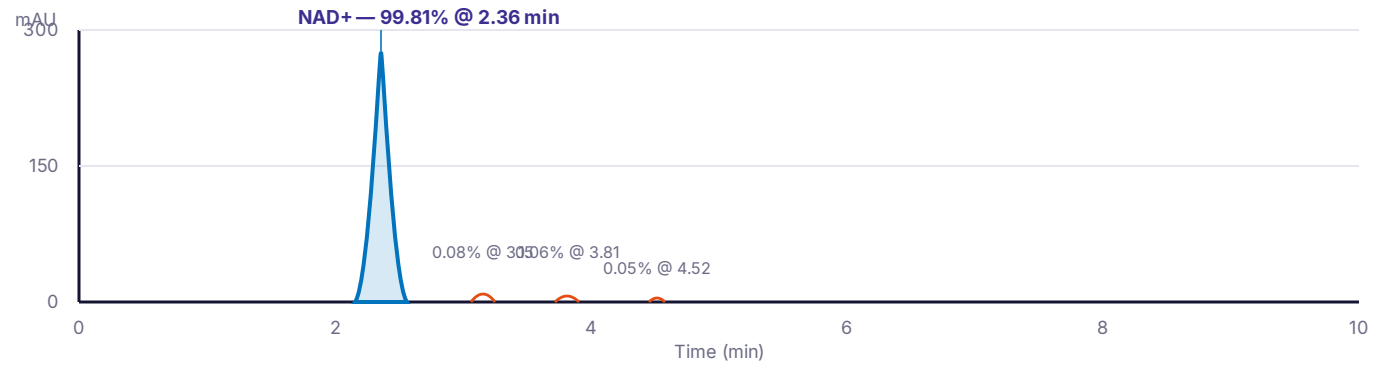
IDENTITY · OBSERVED MASS
663.6 Da
Theoretical 663.4 Da • +0.2 Da (301 ppm)

OVERALL CONCLUSION
PASS
Meets every specification for the tests performed

TEST	METHOD	SPECIFICATION	RESULT	CONCLUSION
Appearance	Visual inspection	White to off-white powder (hygroscopic)	White powder	**PASS**
Identity (mass)	LC-MS, ESI positive	Theoretical ± 1.0 Da	663.6 Da	**PASS**
Purity	RP-HPLC, UV 214 nm, area%	99.0%	99.81%	**PASS**
Largest impurity	RP-HPLC, area%	1.0%	0.08% at 3.15 min	**PASS**
Water content	Karl Fischer	5.0%	2.4%	**PASS**
Bacterial endotoxin	LAL, kinetic	≤ 5.0 EU/mg	0.05 EU/mg	**PASS**
Sterility / bioburden	USP <71>, membrane filtration	No growth after 14 days	No growth; conforms	**PASS**

1 HPLC CHROMATOGRAM

Data file: NAD_PL-2609-068_20260918_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.

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

2 HPLC METHOD · NAD_PL-2609-068_20260918_01

INSTRUMENT	**DATA SYSTEM**	**DETECTOR**
Waters Alliance e2695, SN E2695B742	Empower 3, Build 3471	Waters 2998 PDA
DETECTION WAVELENGTH	**COLUMN**	**COLUMN PART / SERIAL**
214 nm	C18, 150 × 4.6 mm, 3.5 µm	186003326 / USHX18211
MOBILE PHASE A	**MOBILE PHASE B**	**FLOW RATE**
0.1% TFA in water	0.1% TFA in MeCN	1.0 mL/min
COLUMN TEMPERATURE	**INJECTION VOLUME**	**RUN TIME**
30 °C	20 µL	10 min
SAMPLE DILUENT	**SAMPLE CONCENTRATION**	**BLANK INJECTED**
Water, 0.1% TFA	0.5 mg/mL	Yes

REFERENCE STANDARD

In-house NAD+ reference, lot PL-RS-NAD-01, RT 2.34 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	**2.36**	**4,291,830**	**99.81**
2	3.15	3,440	0.08
3	3.81	2,580	0.06
4	4.52	2,150	0.05
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	**IONIZATION / MODE**	**OBSERVED M/Z (CHARGE)**
Waters Acquity SQD	ESI, positive	664.3 (1+ [M+H]) · 686.3 (1+ [M+Na])
DECONVOLUTED MASS	**THEORETICAL MASS**	**DIFFERENCE**
663.6 Da	663.4 Da	+0.2 Da (301 ppm)
DATA FILE	**ACCEPTANCE**	
NAD_PL-2609-068_MS_20260918_01	Within ± 1.0 Da	

6 ADDITIONAL TESTS

TEST	PERFORMED BY	DATE	REPORT / FILE
Water content	In-house	2026-09-19	RPT-KF-PL-2609-068
Endotoxin	In-house	2026-09-20	RPT-ET-PL-2609-068
Sterility	In-house	2026-10-01	RPT-ST-PL-2609-068

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: 2026-09-18

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

Redacted copy: supplier name, logo, address, contact details and verification QR/URL have been removed. This certificate applies only to the named lot and sampled units. Results were obtained by the supplier's in-house laboratory and are not independent third-party testing unless an outside report is attached. Reference values (CAS, formula, theoretical mass, sequence) are literature values. For laboratory research use only; not for human or veterinary use.