

CERTIFICATE OF ANALYSIS

Clean Summary Report — Full Analytical Verification

Product Name:	Tirzepatide	Testing Type:	Full Analytical Verification
Purpose:	Research Use Only (RUO)	Supplier Info:	Removed for Privacy

1. IDENTITY VERIFICATION

Parameter / Test	Specification	Result
Appearance	White or off-white powder	Conforms
Solubility	Soluble in water	Conforms
Solution Clarity & Color	Clear and colorless	Conforms
Infrared Spectrum (IR)	IR absorption spectrum matches reference standard	Conforms
Specific Optical Rotation	Within expected range	Conforms
HPLC Identification	Main peak retention time matches reference	Conforms
Molecular Ion Mass	Matches theoretical mass	Conforms
Amino Acid Content	All amino acids within expected ranges	Conforms

2. PURITY & IMPURITY PROFILE

Test	Specification	Result
HPLC Purity	≥ 99.0%	99.5%
Single Impurity	≤ 0.5%	0.2%
High Molecular Weight Species	≤ 0.3%	0.1%

This confirms a clean synthesis with minimal impurities.

3. PHYSICOCHEMICAL PROPERTIES

Parameter	Specification	Result
pH	6.0–9.0	6.57
Water Content (KF)	≤ 10%	2.3%
Sodium Ion	≤ 4%	1.3%

All values fall well within acceptable ranges.

4. RESIDUAL SOLVENTS (GC)

All solvents tested were not detected or below quantification limits, including:

- Dichloromethane
- DMF (Dimethylformamide)
- Acetonitrile
- Methanol
- MTBE (Methyl tert-butyl ether)

This indicates excellent solvent cleanliness.

5. MICROBIOLOGICAL & ENDOTOXIN TESTING

Test	Specification	Result
Bacterial Endotoxins	≤ 5 EU/mg	Conforms
TAMC (Total Aerobic Microbial Count)	≤ 200 cfu/g	20 cfu/g
TYMC (Total Yeast & Mold Count)	≤ 100 cfu/g	5 cfu/g
E. coli	Absent	Absent

These results confirm proper sterile handling and microbiological safety.

6. ACID GROUP IONS

Ion	Specification	Result
Trifluoroacetate (TFA)	≤ 0.1%	Not Detected
Acetate	≤ 0.1%	Not Detected

Both ions were not detected — a strong indicator of clean purification.

7. ASSAY

Test	Specification	Result
Assay	95–105%	99.6%

This confirms excellent potency and peptide integrity.

8. STORAGE CONDITIONS

Store in airtight containers, protected from light, at $-20^{\circ}\text{C} \pm 5^{\circ}\text{C}$.

Overall Result: Conforms to Specification
This batch meets all internal analytical standards and demonstrates excellent purity, identity, and safety.

This Certificate of Analysis is provided for informational and research purposes only.
All supplier-identifying information has been removed for privacy.
End of Report