

# BIOSPECTRA

100 Majestic Way, Bangor, PA 18013 / [www.biospectra.us](http://www.biospectra.us)

Effective Date:	7-Aug-2020	7-Aug-2023	: Date of Next Review
Prepared By:	Amy Hosein	19-002851 v.1.0	: Supersedes
QA/QC Approval:	Carissa McCollian	Wendy Santay	: Management Approval
Reason for Revision:	See Revision History in ensur		

## CERTIFICATE OF ANALYSIS

### TRIS

### BIO EXCIPIENT GRADE / TR3254-K001

### LOT: TR3254-008-0820

$\text{NH}_2\text{C}(\text{CH}_2\text{OH})_3$ ,  $\Delta$  F.W. 121.14 g/mol.  $\Delta$  CAS# 77-86-1

Manufacture Date: 7/14/20 Retest Date: 7/31/22

Manufacturing Site: 1474 Rockdale Lane, Stroudsburg, PA 18360

Packaging Date: 8/28/20 Packaging Site: 100 Majestic Way, Bangor PA, 18013

#### USP COMPENDIA

ANALYSIS	SPECIFICATION	TEST RESULT
Appearance and Color	White/Crystals	White/Crystals
Assay	99.0 – 101.0%	99.7%
Endotoxin	$\leq 2.5$ EU/g	<1.0EU/g
Identification A	Passes Test	Passes Test
Identification B	Passes Test	Passes Test
Identification C	Passes Test	Passes Test
Loss on Drying	$\leq 1.0\%$	0.1%
Melting Range	168-172°C	170-172°C
pH (1 in 20)	10.0 – 11.5	10.7 @ 24.8°C
Residue on Ignition	$\leq 0.1\%$	<0.1%
MicrobialContent	TAMC $\leq 500$ CFU/g	<10CFU/g
	TYMC $\leq 200$ CFU/g	<10CFU/g

#### EP COMPENDIA

ANALYSIS	SPECIFICATION	TEST RESULT
Appearance of Solution	Passes Test	Passes Test
Assay	99.0 – 100.5%	99.7%
Chloride (Cl)	$\leq 100$ ppm	<100ppm
Identification A	Passes Test	Passes Test
Identification B	168-174°C	170-172°C
Identification C	Passes Test	Passes Test
Iron (Fe)	< 10ppm	<10ppm

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## EP COMPENDIA

ANALYSIS	SPECIFICATION	TEST RESULT
Loss on Drying at 105°C	≤ 0.5%	0.1%
pH	10.0 – 11.5	10.7 @ 24.8°C
Related Substances	≤ 1.0%	<1.0%
Sulfated Ash	≤ 0.1%	<0.1%

COUNTRY OF ORIGIN: U.S.A.

TEST METHOD REFERENCE: DCN: 16-000496

RESIDUAL SOLVENTS STATEMENT: Based on the manufacturing process and the controlled handling, storage and analysis of this product, this product complies with the requirements and specifications listed in the current USP method <467> Tables 1, 2, 3, or 4.

INTENDED USE: Material represented by this Certificate of Analysis is suitable for use as an excipient. It is manufactured in accordance with the ICH Q7 Good Manufacturing Practice Guide. The material represented by this Certificate of Analysis is not suitable to be used as an Active Pharmaceutical Ingredient, Drug Product or Household Item.

Prepared by: Car Date: 9/1/20 Job Title: QA Supervisor

Reviewed by: Wing (Paul) Date: 09/01/20 Job Title: QA Manager