

## Certificate of Analysis

Date of Testing: 2023-02-03 16:52:05  
 Date of Next Testing: 2027-02-02 16:52:05  
 Product Name: **Tris(hydroxymethyl)aminomethane**  
 CAS Number: 77-86-1  
 Specifications & Purity: EP, USP, for cell culture test,  $\geq 99.9\%$  (T)  
 Lot #: A2331485  
 SKU #: **T110598**  
**Analysis: 088390**

Parameter	Limit Values	Result
Loss on drying(EP)	0-0.5 (%)	0.41 %
Melting point	168-172 (°C)	171.12000 °C
Ignition Residue(Ash)	0-0.1 (%)	0.08 %
Water by Karl Fischer	0-0.2 (%)	0.13 %
Iron(Fe)(ICP)	0-1 (ppm)	0.62 ppm
Purity (Titration by H <sub>2</sub> SO <sub>4</sub> )	99.7-100.3 (%)	99.84 %
Heavy metal (as Pb)	0-2 (ppm)	1.10 ppm
PH(5% in water)	10-11.5	10.70
UV Absorbance 280nm(40%,H <sub>2</sub> O)	0-0.4	0.06
UV Absorbance 290nm(40%,H <sub>2</sub> O)	0-0.4	0.06
UV Absorbance 260nm(40%,H <sub>2</sub> O)	0-0.4	0.08
Appearance (T110598)	White to Off-White Solid, Powder, or Crystals	White to Off-White Solid, Powder, or Crystals
Identity Test B (USP)	Pass	Pass
Identity Test C (USP)	Pass	Pass
Infrared spectrum	Conforms to Structure	Conforms to Structure
Related substances	Pass	Pass
Solubility in H <sub>2</sub> O , clear colorless , 200g plus 300ml of water	pass	Pass



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A handwritten signature in black ink that reads "John Su".

John Su  
QA & QC Manager