

CERTIFICATE OF ANALYSIS

PRODUCT:	TRIS UltraPure USP/EP Grade [Tris(hydroxymethyl) aminomethane] C ₄ H ₁₁ NO ₃ ; M.W. 121.1; CAS# [77-86-1]	
PRODUCT NUMBER:	T-1178	
LOT NUMBER:	D1159	
	<u>SPECIFICATIONS:</u>	<u>RESULTS:</u>
APPEARANCE:	White crystalline powder	pass
PURITY (dried basis by GC):	≥ 99.9%	99.97%
ASSAY (dried basis):	99.9 – 100.1%	100.0%
MOISTURE (KF):	≤ 0.1%	< 0.1%
MELTING POINT:	170.0 – 172.0°C	170.6°C
SOLUBILITY (2M in H₂O):	Clear and colorless	pass
ABSORBANCE		
@ 280nm, 1M in H₂O:	≤ 0.02	0.01
ABSORBANCE		
@ 290nm, 40% solution in H₂O:	≤ 0.20	0.02
pH		
1.0M Aqueous solution @25°C:	10.5 – 11.5	11.1
pH		
5% solution in H₂O @25°C:	10.0 – 11.5	10.8
IDENTIFICATION A:	-----	pass
IDENTIFICATION B:	-----	pass
IDENTIFICATION C:	-----	pass

APHA COLOR

20% Aqueous solution @25°C: ≤ 20 < 5

LOSS on DRYING

105°C for 3hrs.: ≤ 1.0% 0.0%

**RESIDUE on IGNITION /
SULPHATED ASH:**

≤ 0.05% 0.00%

INSOLUBLE MATTER:

≤ 0.005% 0.000%

UV Abs

@260nm, 10% Aqueous solution: ≤ 0.03 0.01

UV Abs

@280nm, 10% Aqueous solution: ≤ 0.02 0.01

UV Abs

@430nm, 10% Aqueous solution: 0.004 0.000

HEAVY METALS (pb):

≤ 5 ppm < 5 ppm

IRON (Fe):

≤ 1 ppm < 0.3 ppm

ARSENIC:

≤ 1 ppm < 1 ppm

COPPER:

≤ 1 ppm < 1 ppm

LEAD:

≤ 1 ppm < 1 ppm

MAGNESIUM:

≤ 1 ppm < 1 ppm

**DNase, RNase &
PROTEASE:**

None detected pass

Residual solvents (USP) – Based on knowledge of the manufacturing process and the controlled handling and storage of this material, there is no potential for the Class 1, Class 2 or Class 3 solvents specified in USP <467> and EP 5.4 to be present in this material, with the exception of methanol (Class 2 solvent). Methanol content is controlled to <3000 ppm limit requirement with a 0.3wt% limit on the loss on drying test.

CONFORMS to USP/EP Grade Specifications.

STORAGE & HANDLING:

Store desiccated at +20°C. **WARNING: IRRITANT!**

CAUTION: For laboratory research & scientific manufacturing use only. Not for human or drug use. The pharmacological and toxicological properties of this product have not been fully investigated. Use caution when handling. Do not use this compound if you are not fully trained or are unaware of the hazards involved.

Verified:

