

## Certificate of Analysis

HR2-579 (page 1)

### Description

Optimize™ reagents are preformulated macromolecular crystallization grade solutions designed specifically for the crystallization of proteins, peptides, and nucleic acids. Each Optimize solution is formulated using high purity salts, polymers, and buffers. Sterile filtered Optimize reagents are formulated at convenient ready to use concentrations.

Optimize reagents remove the guesswork and make the process of reproducing preliminary screening conditions and general optimization faster, easier, and more convenient. When using Optimize reagents the user moves directly from the screen to the optimization with no time wasted searching for and formulating salts, buffers, and viscous polymers. This Certificate of Analysis indicates the quality and performance of the reagent.

### Buffer Titration

The following table can be used to determine the appropriate mix of 1.0 M TRIS hydrochloride and 1.0 M Sodium hydroxide to give the desired pH. The volumes supplied below assume one will have a final buffer concentration of 0.1 M in a final reservoir volume of 1,000 microliters. This buffer will give pH values  $\pm 0.01$  at a temperature of 25°C.

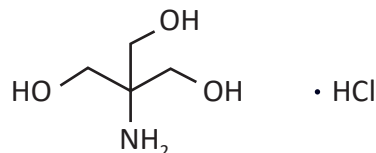
**Titration Table for 1.0 M TRIS hydrochloride with  
1.0 M Sodium hydroxide**

pH	1.0 M NaOH ( $\mu$ l)	1.0 M TRIS HCl ( $\mu$ l)
7.0	6	100
7.1	8	100
7.2	10	100
7.3	12	100
7.4	15	100
7.5	20	100
7.6	23	100
7.7	28	100
7.8	33	100
7.9	37	100
8.0	45	100
8.1	50	100
8.2	55	100
8.3	60	100
8.4	64	100
8.5	70	100
8.6	75	100
8.7	82	100
8.8	84	100
8.9	88	100
9.0	92	100

### Technical Support

Inquiries regarding Optimize reagent formulation, interpretation of screen results, optimization strategies and general inquiries regarding crystallization are welcome. Please e-mail, fax, or telephone your request to Hampton Research. Fax and e-mail Technical Support are available 24 hours a day. Telephone technical support is available 8:00 a.m. to 4:30 p.m. USA Pacific Standard Time.

Danielle Pagano  
Quality Control



### Property Test

### Lot (Sample) Results

Product Name	1.0 M TRIS hydrochloride
Synonyms	Tris(hydroxymethyl)aminomethane - hydrochloride, TRIS HCl, Trizma hydrochloride
Product Number	HR2-579
Lot Number	_____
Formula	C <sub>4</sub> H <sub>11</sub> NO <sub>3</sub> · HCl NH <sub>2</sub> C(CH <sub>2</sub> OH) <sub>3</sub> · HCl
Formula Weight (M <sub>r</sub> )	157.60
CAS Number	[1185-53-1]
EC Number	214-684-5
Beilstein Registry Number	3675235
MDL Number	MFCD00012590
PubChem Substance ID	24900398
Purity	≥ 99.0%
Loss on Drying	≤ 0.2%, 110°C
Residue on Ignition	≤ 0.2% (as SO <sub>4</sub> , 900°C)
Residue (Filter Test)	No Residue
Infrared Spectrum	Corresponds
Melting Point (Starting Material)	149.3°C (dec.)(lit.)
Appearance (Starting Material)	Colorless, Fine Crystals with Lumps
Appearance (Solution)	Clear, Colorless
Absorbance ( $\lambda$ )	0.5 M in H <sub>2</sub> O
UV Absorption	$\lambda$ : 260 nm A <sub>max</sub> : 0.015 $\lambda$ : 280 nm A <sub>max</sub> : 0.010
pKa (25°C)	8.1
Trace Analysis	Passed

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HR2-579 (page 2)

### Property Test

### Lot (Sample) Results

Refractive Index \_\_\_\_\_ at 20°C  
Refractive Index Range 1.35840 - 1.35891 at 20°C

pH \_\_\_\_\_ at 25°C  
pH Range 3.9 - 4.0 at 25°C

Conductivity \_\_\_\_\_ mS/cm at 25°C  
Conductivity Range 52.3 - 53.7 mS/cm at 25°C

Total Impurities Insoluble matter passes filter test

Al	≤ 0.0005%
As	≤ 0.0001%
Ba	≤ 0.0005%
Bi	≤ 0.0005%
Ca	≤ 0.001%
Cd	≤ 0.0005%
Co	≤ 0.0005%
Cr	≤ 0.0005%
Cu	≤ 0.0005%
Fe	≤ 0.0005%
K	≤ 0.005%
Li	≤ 0.0005%
Mg	≤ 0.0005%
Mn	≤ 0.0005%
Mo	≤ 0.0005%
Na	≤ 0.005%
Ni	≤ 0.0005%
Pb	≤ 0.0005%
SO <sub>4</sub>	≤ 0.005%
Sr	≤ 0.0005%
Zn	≤ 0.0005%

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34 Journey

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