Optimize™

HAMPTON RESEARCH
Solutions for Crystal Growth

Certificate of Analysis — HR2-571 (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.

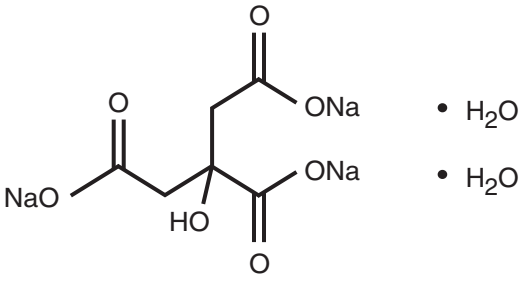
Optimize reagents remove the guesswork and make the process of reproducing preliminary screening conditions and general optimization faster, easier, and more convenient. When using Optimize reagents the user moves directly from the screen to the optimization with no time wasted searching for and formulating 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 Sodium citrate tribasic dihydrate and 1.0 M Hydrochloric acid 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 ± 0.01 at a temperature of 25°C.

Titration Table for 1.0 M Sodium citrate tribasic dihydrate with 1.0 M Hydrochloric acid

pH	1.0 M HCl (µl)	1.0 M tri-Na Citrate (µl)
3.0	242	100
3.1	236	100
3.2	229	100
3.3	222	100
3.4	215	100
3.5	208	100
3.6	201	100
3.7	193	100
3.8	185	100
3.9	178	100
4.0	170	100
4.1	162	100
4.2	154	100
4.3	146	100
4.4	138	100
4.5	130	100
4.6	122	100
4.7	115	100
4.8	107	100
4.9	99	100
5.0	92	100
5.1	85	100
5.2	77	100
5.3	71	100
5.4	64	100
5.5	57	100
5.6	51	100
5.7	45	100
5.8	40	100
5.9	34	100
6.0	29	100
6.1	25	100
6.2	20	100



Property Test	Lot (Sample) Results
Product Name	1.0 M Sodium citrate tribasic dihydrate
	This solution is not titrated
	Useful pH range: 3.0 - 6.2. Use HCl to adjust pH
Synonyms	Trisodium citrate dihydrate
	Citric acid trisodium salt dihydrate
Product Number	HR2-571
Lot Number	_____
Formula	$C_6H_5Na_3O_7 \cdot 2H_2O$
	$HOC(COONa)(CH_2COONa)_2 \cdot 2H_2O$
Formula Weight (M_r)	294.10
CAS Number	[6132-04-3]
EC Number	200-675-3
Merck	14,8602
Beilstein Registry Number	6104939
MDL Number	MFCD00150031
Purity	≥ 99.0%
Titration (NT) $HClO_4$ 0.1 N	99.0 - 101.0%
Appearance (Starting Material)	Colorless, Fine Crystals
Appearance (Solution)	Clear, Colorless
Trace Analysis	Passed
Residue (Filter Test)	No Residue
Absorbance (λ)	0.1 M in H_2O
UV Absorption	λ: 260 nm A_{max}: 0.010 λ: 280 nm A_{max}: 0.010

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Property Test	Lot (Sample) Results
Melting Point (Starting Material)	> 300°C (lit.)
pKa_1	3.1
pKa_2	4.8
pKa_3	6.4
pH	_____ at 25°C
pH Range	8.1 - 8.4 at 25°C
Refractive Index	_____ at 20°C
Refractive Index Range	1.37347 - 1.37370 at 20°C
Conductivity	_____ mS/cm at 25°C
Conductivity Range	60.0 - 69.8 mS/cm at 25°C
Total Impurities	Insoluble matter, Passes filter test 11 - 13% water
Al	≤ 0.0005%
As	≤ 0.00001%
Ba	≤ 0.0005%
Bi	≤ 0.0005%
Ca	≤ 0.005%
Cd	≤ 0.0005%
Cl	≤ 0.001%
Co	≤ 0.0005%
Cr	≤ 0.0005%
Cu	≤ 0.0005%
Fe	≤ 0.0005%
K	≤ 0.01%
Li	≤ 0.0005%
Mg	≤ 0.0005%
Mn	≤ 0.0005%
Mo	≤ 0.0005%
NH_4^+	≤ 0.001%
Ni	≤ 0.0005%
Pb	≤ 0.0005%
SO_4	≤ 0.005%
Zn	≤ 0.0005%

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.

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