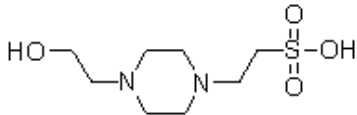


Specification Comparison

HEPES

Sigma-Aldrich® HEPES Physical Properties

Synonyms	4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid N-(2-Hydroxyethyl)piperazine-N'-(2-ethanesulfonic acid)					
Molecular Formula	C ₈ H ₁₈ N ₂ O ₄ S	Beilstein Registry	883043	pKa (at 20)	7.55	
Molecular Weight	238.30	MDL Number	MFCD00006158	pKa (at 25)	7.48	
CAS Number	7365-45-9	EG/EC Number	230-907-9	pKa (at 37)	7.31	
Useful pH range	6.8 - 8.2					

Sigma-Aldrich HEPES Specifications Comparison

	H3375	H6147	H4034	H7523	54459	54457
Grade	≥99.5% (titration)	BioXtra, suitable for mouse embryo cell culture, ≥99.5% (titration)	BPC, ≥99.5% (titration), cell culture tested	BioXtra, pH 5.0 - 6.5 (20 °C, 1 M in H ₂ O), ≥99.5% (titration)	BioUltra, ≥99.5% (T)	BioUltra, for molecular biology, ≥99.5% (T)
Purity	≥99.5%	≥99.5%	≥99.5%	≥99.5%	≥99.5%	≥99.5%

Reagent Testing

	H3375	H6147	H4034	H7523	54459	54457
Enhanced Quality Profile Buffers	X	X	X	X		
260NM			≤0.05	≤0.045	≤0.045	≤0.045
280NM			≤0.05	≤0.035	≤0.035	≤0.035
290NM	≤0.05	≤0.05	≤0.05			
IR	X		X			
pH				5.0 - 6.5 (20 °C, 1 M in H ₂ O)	5.0 - 6.5 (25 °C, 1 M in H ₂ O)	5.0 - 6.5 (25 °C, 1 M in H ₂ O)
Molarity						
Osmolality						
Karl Fischer	≤0.1%	≤0.1%	≤0.1%	≤0.1%		
LOD				≤1.0%	≤0.5%	≤0.5%
Insoluble Matter				filter test	filter test	filter test
Residue on Ignition				≤0.1%	≤0.1%	≤0.1%

Life Science Testing						
	H3375	H6147	H4034	H7523	54459	54457
Animal Component Free						
Endotoxin			≤0.1 eu/mg			
SPC			≤100 cfu/g			
Cell test			X			
Sterility						
RNAse			X			X
DNase			X			X
Nickase			X			
Protease			X			X
Phosphatase						X
Embryo		X				
Trace Elemental Impurities						
	H3375	H6147	H4034	H7523	54459	54457
Sodium(Na)				≤0.005%	≤0.0050%	≤0.0050%
Chloride(Cl)				≤0.05%	≤0.0050%	≤0.0050%
Sulfate(SO₄)					≤0.0200%	≤0.0050%
Aluminum(Al)				≤0.0005%	≤0.0005%	≤0.0005%
Arsenic(As)				≤0.0001%	≤0.00001%	≤0.00001%
Barium(Ba)				≤0.0005%	≤0.0005%	≤0.0005%
Bismuth(Bi)				≤0.0005%	≤0.0005%	≤0.0005%
Calcium(Ca)				≤0.001%	≤0.0010%	≤0.0010%
Cadmium(Cd)				≤0.0005%	≤0.0005%	≤0.0005%
Cobalt(Co)				≤0.0005%	≤0.0005%	≤0.0005%
Chromium(Cr)				≤0.0005%	≤0.0005%	≤0.0005%
Copper(Cu)				≤0.0005%	≤0.0005%	≤0.0005%
Iron(Fe)			≤0.0005%	≤0.0005%	≤0.0005%	≤0.0005%
Potassium(K)				≤0.005%	≤0.0050%	≤0.0050%
Lithium(Li)				≤0.0005%	≤0.0005%	≤0.0005%
Magnesium (Mg)				≤0.0005%	≤0.0005%	≤0.0005%
Manganese (Mn)				≤0.0005%	≤0.0005%	≤0.0005%
Molybdenum (Mo)				≤0.0005%	≤0.0005%	≤0.0005%
Nickel(Ni)				≤0.0005%	≤0.0005%	≤0.0005%
Lead(Pb)	≤0.0005%	≤0.0005%	≤0.0005%	≤0.0005%	≤0.0005%	≤0.0005%
Strontium(Sr)				≤0.0005%	≤0.0005%	≤0.0005%
Zinc(Zn)				≤0.0005%	≤0.0005%	≤0.0005%

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