

Stock Solution



TD-S Revision 2.0

Creation Date: 8/17/2015
Revision Date: 10/21/2019

0.5M MES Monohydrate Buffer - 1 L

Instructions

1. Suspend 106.53 g of MES free acid monohydrate ([MES, Free Acid Monohydrate, GoldBio Catalog # M-090](#) [CAS 145224-94-8, mw. = 213.25 g/mol]) in 750 mL of dH₂O.
2. Adjust to desired pH using 10N NaOH.
3. Fill to final volume of 1 L with dH₂O.
4. Filter sterilize (recommended) or autoclave.
5. Store at 4°C.

Note: Alternatively, equimolar concentrations of MES free acid monohydrate and MES sodium salt ([MES, Sodium Salt, GoldBio Catalog # M-091](#) [CAS 71119-23-8, mw. = 217.22]) can be mixed to attain a pH of ~ 6.1. The pH can be adjusted by increasing the molar ratio of MES free acid (more acidic) or MES sodium salt (more basic) and estimated using the Hendersen-Hasselbalch equation.

To make a 1 L solution of 0.5M MES, use the table below to estimate the required volume of base for a given pH:

Starting pH: 2.92
Adjust pH with: 10N NaOH

pH	5.5	5.6	5.7	5.8	5.9	6	6.1	6.2	6.3	6.4	6.5	6.6	6.7
mL	5	6.1	7.4	8.7	10.8	12.6	14.6	16.8	19.2	21.7	24	26.3	28.2

Note: This data was collected in GoldBio labs using GoldBio reagents and calculated using 100 ml volumes. All reagent volumes recorded above were adjusted accordingly to create this protocol.

MES pKa at 25°: 6.10
MES pH range: 5.5 – 6.7
d(pKa)/dT value: -0.011