

TCEP

Cat. # P1020-10, P1020-25, P1020-100

Also Known as: Tris (2-Carboxyethyl) phosphine Hydrochloride

Formula: $C_9H_{15}O_6P \cdot HCl$

MW: 286.65 g/mol

CAS No.: 51805-45-9

Source: Synthetic

Form: Lyophilized powder

Solubility: Soluble in water to 310 g/L

Quality Assurance: >99% by HPLC

Description: TCEP (tris(2-carboxyethyl)phosphine) is a strong reducing agent. Compared to dithiothreitol (DTT) and β -mercaptoethanol, TCEP has the advantages of being odorless, a more powerful reducing agent, an irreversible reducing agent, more hydrophilic, and more resistant to oxidation in air. It is soluble in water and stable at neutral pH. It does not reduce metals used in immobilized metal affinity chromatography such as Ni-NTA resin. TCEP is particularly useful when labeling cysteine residues with maleimides.

Storage: Room temperature shipping. Store at 4°C upon receiving.

Application: For most applications, 5 to 50 mM TCEP provides sufficient molar excess to effectively reduce peptide or protein disulfide bonds.

Prepare 1M Stock: Prepare 40mL 1M TCEP stock solution

1. Weigh 11.47g TCEP powder. Dissolve in 20ml distilled water in a beaker by stirring (may not fully dissolved, but it is OK to proceed to step 2). The resulting solution is at ~pH 2.5. Wear personal protection.
2. Bring the TCEP solution to pH7.0 with cold 10N NaOH prepared in distilled water. Add NaOH solution slowly with stirring, and monitor pH using a pH meter. This step may take an hour or longer to avoid heating up the solution due to heat release from the acid/base reaction. We premake 10N NaOH and store at 4 °C.
3. Bring to a final volume of 40ml using distilled water.
4. Use a vacuum filter system with 0.22 micron membrane to remove any insoluble species, aliquot and store at -20°C for long-term storage up to two years. TCEP solution is stable at 4 °C for 8 weeks.

