ReadiUse™ 0.5 M TCEP Solution *Neutral and Thiol-Free*

Catalog number: 20013
Unit size: 5 x 1 mL

Component	Storage	Amount (Cat No. 20013)
ReadiUse™ 0.5 M TCEP Solution *Neutral and Thiol-Free*	Refrigerated (2-8 °C)	5 x 1 mL

OVERVIEW

ReadiUse™ 0.5 M TCEP Solution is a stable, ready-to-use stock solution of TCEP, a strong phosphine-based reducing agent that offers a thiol-free, odorless alternative to DTT and β-mercaptoethanol. Unlike thiol-based reagents, the ReadiUse™ 0.5 M TCEP Solution is resistant to air oxidation, nonvolatile, and nonreactive toward most protein functional groups, making it highly stable and reliable. At 5–50 mM working concentrations, it rapidly and completely reduces protein and peptide disulfide bonds within minutes at room temperature, performing as effectively as DTT. The neutral pH formulation provides clear advantages over acidic TCEP·HCl by preserving protein integrity, preventing hydrolysis and carbohydrate modification, and producing sharper SDS-PAGE bands. The solution is effective across a broad pH range (4.0–9.0) and temperature range (5–95 °C), and remains compatible with salts, detergents, and denaturants such as guanidine·HCl (though urea should be avoided). Because it contains no sulfhydryl groups, ReadiUse™ TCEP does not require removal prior to downstream applications such as histidine-tagged protein purification or maleimide conjugation. For best results, avoid contact with metals, and include 5–20 mM EDTA to prevent reoxidation by divalent ions. Reduced samples should be used promptly, as disulfide bonds may reform over time.

AT A GLANCE

1. Prepare reducing buffer by adding ReadiUse™ 0.5 M TCEP Solution to 2X SDS sample buffer (Tris-glycine) to a final concentration of 50 mM, then mix equal volumes of buffer and protein sample.
2. Heat at 95 °C for 5 minutes, cool, centrifuge briefly to remove aggregates, and load reduced samples onto the gel

PREPARATION OF WORKING SOLUTION

Dilute ReadiUse™ 0.5 M TCEP Solution 1:10 into 2X SDS sample buffer for Tris-glycine gels to obtain a final concentration of 50 mM TCEP.

SAMPLE EXPERIMENTAL PROTOCOL

1. Combine equal volumes of protein sample and the prepared 2X reducing buffer in a microcentrifuge tube.
2. Heat the mixture at 95 °C in a boiling water bath for 5 minutes to denature the proteins.
3. Let the samples cool to room temperature.
4. Spin briefly to remove any insoluble debris.
5. Load the reduced samples directly onto a Tris-glycine SDS-PAGE gel.

EXAMPLE DATA ANALYSIS AND FIGURES

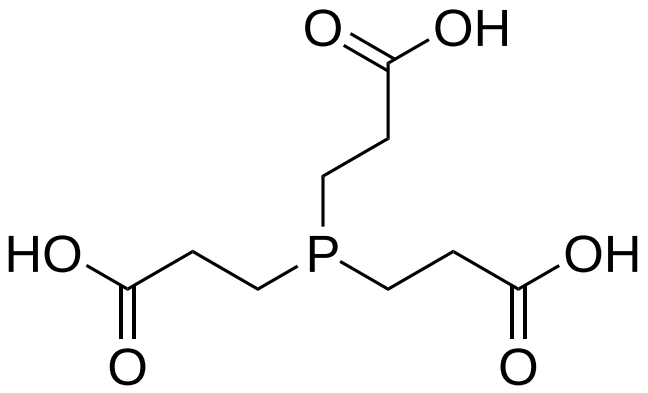

Figure 1. The chemical structure of ReadiUse™ 0.5 M TCEP Solution *Neutral and Thiol-Free*.

DISCLAIMER

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