SDS-PAGE Protein Loading Buffer (5×)

Description

TargetMol's SDS-PAGE Protein Loading Buffer (5×) is a highly concentrated buffer optimized for SDS-PAGE electrophoresis. It is designed for protein sample preparation under denaturing conditions, enabling efficient protein separation and analysis. This product contains SDS, DTT, glycerol, bromophenol blue, and other key components to ensure thorough sample denaturation, optimal electrophoretic migration, and clear loading visibility.

Features

• **Efficient Denaturation:** Contains SDS and the reducing agent DTT to fully disrupt secondary and tertiary protein structures, linearizing proteins and improving electrophoretic separation efficiency.
• **Concentrated Formula:** Designed as a 5× concentrate for flexible use and reduced reagent consumption; simply dilute at a 1:4 ratio before use.
• **Loading visualization:** Includes bromophenol blue dye for easy tracking of the electrophoresis process—no additional dye needed.
• **Increased sample density for easier loading:** Contains glycerol to raise sample density, helping the sample sink to the bottom of the wells and ensuring stable loading.
• **Stable pH Buffering:** Formulated with a Tris-HCl buffer system to maintain stable pH during electrophoresis, supporting proper protein migration.
• **Convenient to Use:** Ready-to-use formula that eliminates the need for self-preparation, offering easy operation, good reproducibility, and reduced human error.
• **Broad Applications:** Suitable for all denaturing SDS-PAGE experiments and compatible with gels and electrophoresis systems from various brands.

Applications

For preparing and loading protein samples in denaturing polyacrylamide gel electrophoresis.

Instructions

1. Place the product at room temperature or in a water bath not exceeding 37 ℃ to heat until the SDS is completely dissolved. Remove promptly after dissolution and keep at room temperature. Avoid prolonged exposure to high temperatures.
2. Mix the protein sample with the 5x loading buffer at a 4:1 volume ratio (i.e., add 1 μL loading buffer to every 4 μL protein sample) and mix thoroughly.
3. Heat the mixed sample at 100 ℃ or in a boiling water bath for 3-5 minutes to fully denature the proteins.
Note: If the sample is viscous (e.g., due to high amounts of cells/tissues or genomic DNA), and remains sticky or forms a semi-transparent gel-like material after boiling for 3-5 min, you may extend the heating time by 5-10 min, or dilute the sample with an appropriate volume of 1x loading buffer and boil again for 3-5 min. This ensures sufficient DNA fragmentation and protein release, preventing issues during loading.
4. Allow the heated sample to cool to room temperature, then load it directly into the wells of the SDS-PAGE gel.
5. Perform electrophoresis under standard SDS-PAGE conditions. Stop running once the bromophenol blue dye front migrates near the bottom of the gel.

Storage

Store at -20 ℃ for 12 months.

Precautions

1. This product contains a small amount of DTT, which may produce a slight irritating odor, but it does not contain highly toxic β-mercaptoethanol.
2. This product may show SDS precipitation during storage at -20 ℃. Please ensure it is fully dissolved before use. It is recommended to aliquot the buffer after complete dissolution to avoid repeated freeze-thaw cycles that may affect its performance.
3. The product is for R&D use only, not for diagnostic procedures, food, drug, household or other uses.
4. Please wear a lab coat and disposable gloves.