



CYANOBOROHYDRIDE COUPLING BUFFER

Product Number **C4187**

Storage Temperature 2-8°C

Product Information

Synonyms: Aldehyde group containing affinity matrix coupling buffer

Product Description

A ready-to-use ligand coupling buffer containing cyanoborohydride. It is used to couple amine containing ligands to supports with aldehyde functional groups (Aldehyde agarose – A9951 or Periodate agarose – P9967 or P3568). The coupling buffer reaction results in the formation of a stable C-N bond.

Supports containing aldehyde groups will react at slightly alkaline pH with ligands containing primary or secondary amines to form Schiff's bases (C=N). Cyanoborohydride is a more selective reducing agent than sodium borohydride. It has the advantage that it will rapidly reduce the Schiff's base, but unlike the borohydride, it will not reduce the aldehyde groups. Therefore, the Cyanoborohydride Coupling buffer drives the reaction, reducing the Schiff's base (imine bond) to form a highly stable alkylamine bond and leaving the remaining aldehyde groups intact.

Physical Properties

Appearance: Clear, colorless solution

Precautions and Disclaimer

Sigma's Cyanoborohydride Coupling Buffer is for laboratory use only, not for drug, household or other uses. Refer to the Material Safety Data Sheet (MSDS).

Storage

Store product at 2-8°C.

Procedure

1. The ligand of choice containing a primary or secondary amine is dissolved directly into the coupling buffer (C4187). A volume of coupling buffer equal to the volume of packed gel is used.
2. The coupling buffer/ligand solution is then added directly to the gel cake and mixed at room temperature for 1-3 hours.
3. The gel is then collected by filtration and washed with 5-10 volumes of water or buffer.

Note: Using this procedure, 10-15 mg of BSA/ml of gel can be coupled to Periodate agarose (P9967 or P3568) in 90 minutes.

References

1. Borch, R.F., Bernstein, M.D., and Durst, H.D. J. Am. Chem. Soc. **93**, 2897 (1971).
2. Hermanson, G.T., Mallia, A.K., and Smith, P.K. In Immobilized Affinity Ligand Techniques, pp. 69-75, Academic Press, Inc., San Diego, California (1992).

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