

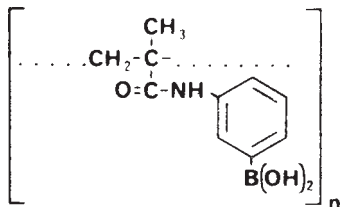


Boric Acid Gel for column chromatography

Description and Characteristics

Boric Acid Gel is a cross-linked polymer insoluble in water and all organic solvents. It is prepared by the cross-linking copolymerization of dihydroxyborylanilino-substituted methacrylic acid with 1,4-butanediol dimethacrylate.

The gel is swollen in distilled water, then activated with 0.5N HCl. It is then washed to neutral pH and vacuum-dried. Thus, the gel is supplied "activated," as a nearly free-flowing granulate.



Appearance	nearly dry, off-white granules
Boron content	1.4% (dry)
Packing volume	ca. 0.6g/mL
Degree of swelling	ca. 80% (i.e., final increase in volume ca. 20%)
Bead size	0.1-0.4mm
Ribose-binding capacity	approx. 0.01mmol/mL (The Boric Acid Gel offered by Aldrich has been shown to possess a binding capacity four times that reported in the literature.)

Application

Boric Acid Gel serves as useful packing material for the column chromatographic separation of mixtures whose components form complexes of varying stability with boric acid. Separations of sugars and nucleic acids based on boric acid complex formation are standard procedures. However, preparative separations are very complicated because of the difficulty in separating the resolved components from the borate buffer used. The major advantage of the use of Boric Acid Gel

is that the components are eluted from the column in the free, non-complexed form. The boric acid, due to covalent linkage to the polymer, remains in the stationary phase.

Separations of mono- and oligosaccharides,² ribonucleosides-deoxyribonucleosides,¹ oligonucleosides,³ and tRNA have been reported. Separation is dependent upon complex formation, and the pH and molarity of the buffer. **Boric Acid Gel** may be used in aqueous solution at pH 3-11 and in organic solvents.

References

- (1) Schott, H. *Angew. Chem., Int. Ed. Engl.* **1972**, 11, 824. [*Angew. Chem.* **1972**, 84, 819].
- (2) Reske, K.; Schott, H. *Angew. Chem., Int. Ed. Engl.* **1973**, 12, 417. [*Angew. Chem.* **1973**, 85, 412].
- (3) Schott, H.; Rudloff, E.; Schmidt, P.; Roychoudhury, R.; Kössel, H. *Biochemistry* **1973**, 12, 932.

Recommended Chromatographic Procedure

- 1) Place the gel as supplied on a sintered glass or Buchner funnel, and wash with the eluting solvent(s) (ten times the column volume).
- 2) Add the initial buffer to the gel to form a slurry; pack the column with the slurry
- 3) Rinse the column with the initial buffer (two times the column volume).
- 4) Pour a concentrated solution ($\leq 10\%$ of the column volume) of the sample into the column and allow to penetrate. Elute.
- 5) After elution, rinse the column with distilled water and store in a refrigerator.

The activity of the gel may decrease on prolonged storage. Washing with 2N HCl will reactivate the gel. It should then be washed with water to pH 7.

Packaging and Pricing

For your convenience, Boric Acid Gel is packaged in 30-mL units; thus, one package may be used entirely for a 30-mL column.

18,445-4 Boric Acid Gel 30mL
particle size 0.1-0.4mm.

Material will be billed at the price in effect when shipment is made.

This information is presented to assist you in evaluating our product. It is intended for use by technically-skilled persons. We do not guarantee favorable results, and we assume no liability in connection with its use. This information is not intended as a license to operate under, or a recommendation to infringe, any patent covering any material or use. Not for drug, food, cosmetic or household use.

Aldrich Chemical Company, Inc.

940 West Saint Paul Ave., Milwaukee, WI 53233 Telephone (414) 273-3850 Cable Aldrichem TWX 910-262-3052