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## OPERATING CONDITIONS and INSTRUCTIONS

### TSK-GEL® Guardgel Products

<u>KITS (METAL)</u>		<u>PREP KITS (METAL)</u>		<u>KITS (Glass)</u>	
13127	ABA-5PW			14454	ABA-5PW
13125	Boronate-5PW			14451	Boronate-5PW
08647	Chelate-5PW	02426	Chelate-5PW	14442	Chelate-5PW
13121	Heparin-5PW			14445	Heparin-5PW
13069	CM-5PW	02421	CM-5PW	14024	CM-5PW
07650	CM-SW				
07210	DEAE-5PW	16092	DEAE-5PW	08806	DEAE-5PW
07648	DEAE-SW				
08643	Ether-5PW	02424	Ether-5PW	14025	Ether-5PW
07652	Phenyl-5PW	02425	Phenyl-5PW	08808	Phenyl-5PW
		02427	Octadecyl-4PW		
		02428	Phenyl-5PW RP	14022	Phenyl-5PW RP
07211	SP-5PW	16093	SP-5PW	08807	SP-5PW
18388	Super Q-5PW				

In addition to the instructions on these pages, also refer to the Instruction Manual and the Operating Conditions and Specifications sheet that came with the separation column.

#### A. OPERATING CONDITIONS

- Shipping Solvent: TSKguardgel packings are either shipped as a concentrated slurry or have been vacuum dried following treatment with these slurry solvents.
 

PW-based Ion Exchangers, HIC packings and RPC packings	50% Methanol/50% Water
SW-based Ion Exchangers:	Acetonitrile (vacuum dried)
Affinity packings:	Water
HA-1000:	10 mM Sodium Phosphate, pH 6.8
- Other Parameters: Consult the Operating Conditions and Specifications sheet of the corresponding separation column for recommendations about what conditions to use and which ones to avoid, how to clean the column (packing material) and how to store it.
 

**NOTE:** Metal frits can be cleaned by sonication in 6 M HCl for 30 minutes. Use 0.2 M NaOH to clean frits in glass fittings.
- Replacement: Guard column life depends greatly on sample cleanliness. As a general rule, guard columns should be replaced after every 30 - 40 sample injections, when the peaks become excessively wide, or when the peaks show splitting.

## B. PACKING INSTRUCTIONS

The metal and glass TSKguardgel Kits contain the parts described below. See the back of this page for instructions on how to pack each guard column type.

### Metal

- Column Holder, consisting of external reducing union, cap, frit, 2 ferrules
- Column, 6.0 mm ID x 9.5 mm OD x 25.0 mm L, 2  $\mu\text{m}$  frit at 10.0 mm depth, 1/16" exit
- Replacement Frits, 2
- Capillary Tubing, 5.0 cm x 1/16" OD x 0.01" ID
- Nuts and Ferrules, 10 - 32 threads for 1/16" tubing, 2 each
- 5.0 ml TSKguardgel

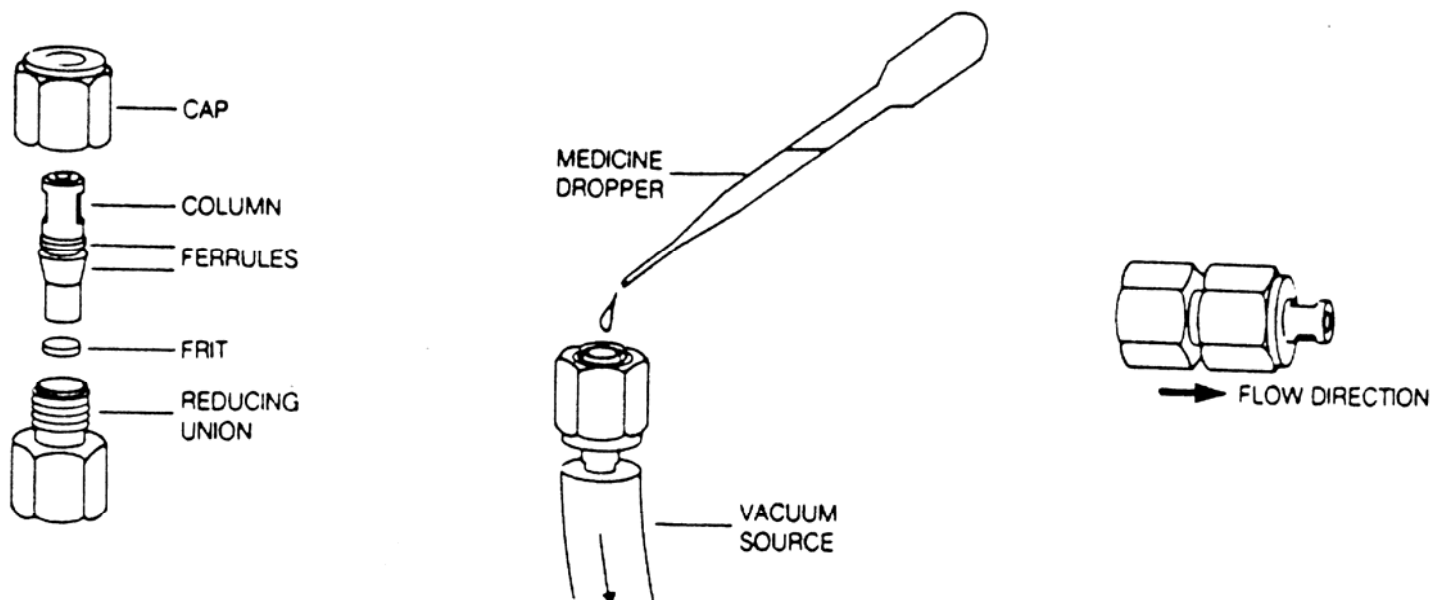
### Prep Metal

- Column Holder, consisting of external reducing union, cap, frit, 2 ferrules
- Column, 10mm ID x 12.75 mm OD x 35.0 mm L, 10  $\mu\text{m}$  frit at 20.0 mm depth, 1/16" exit
- Replacement Frits, 2
- Capillary Tubing, 5cm x 1/16" OD x 0.02" ID
- Nuts and Ferrules, 10 - 32 threads for 1/16" tubing, 2 each
- 2 x 5.0 ml TSKguardgel

### Glass

- Column Holder, blue
- Glass Column, 8.0 mm ID x 13.0 mm OD x 10.0 mm L
- External Endfitting, clear, accepts M6 or 1/4-28 fittings, 2
- Caps, clear, M6 threads, 2
- Packing Adaptor, clear
- 5.0 ml TSKguardgel

## HOW TO PACK THE METAL GUARDGEL COLUMN



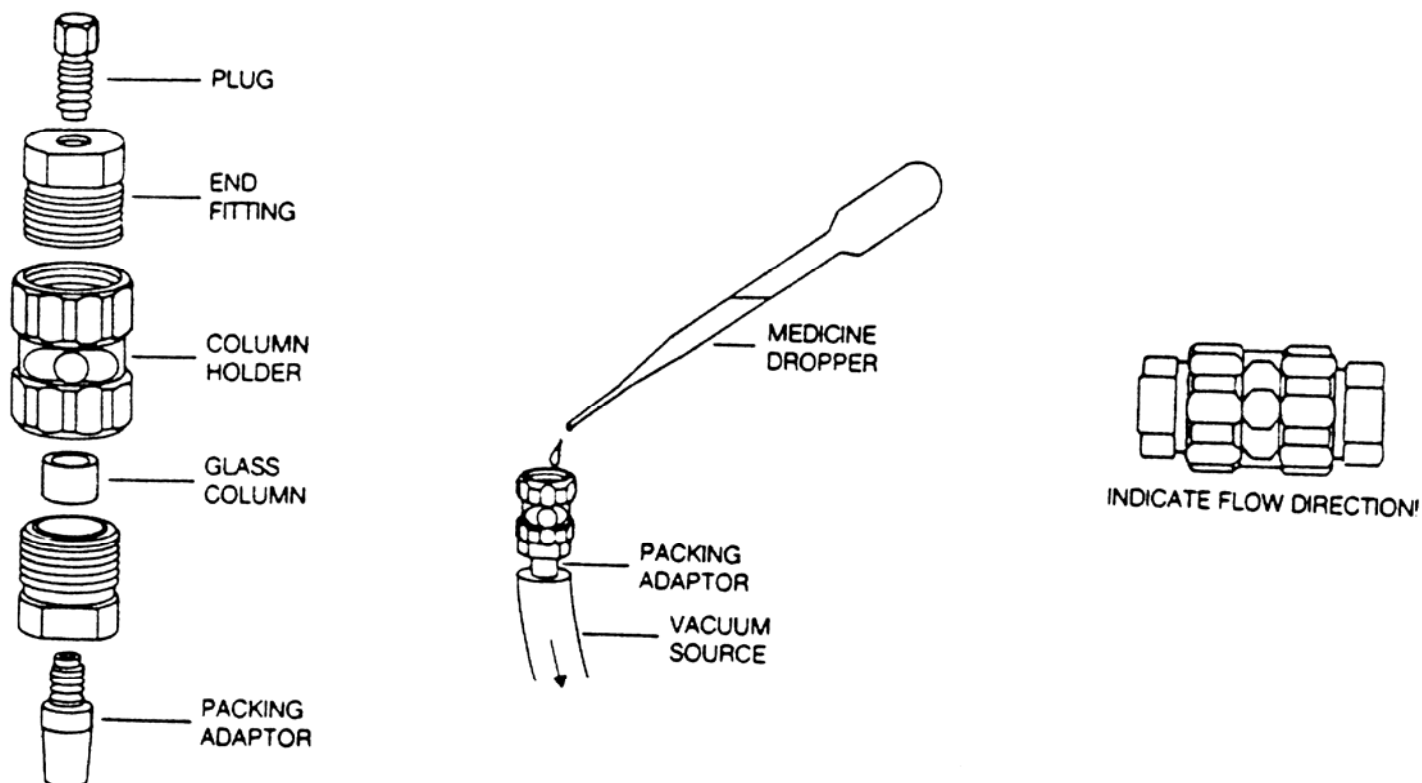
TSK-GEL guard columns are shipped partially assembled. The first step is to set the ferrules onto the column. Place the column assembly on the table with the column facing up, as shown above. Using wrenches, tighten the cap onto the reducing union by making approximately 1/2 turn. This should set the ferrules onto the column tube. Separate the cap and the column from the reducing union. Take the frit out of the reducing union and place both on the bench.

Fit the cap and the column into a laboratory clamp. Attach tubing from an aspirator or other gentle vacuum source to the column and apply suction. Resuspend the Guardgel in its container by adding about 10 ml of the appropriate shipping solvent. Pipet the slurry into the column using a medicine dropper or pipet. Continue adding gel until the surface of the gel bed is flush with the top of the column. Remove excess packing with a spatula. Make sure that no packing is left on the ferrules. Disconnect the vacuum source. Place the frit and the reducing union on top of the packed guard column. Tighten with a wrench.

Connect the guard column (at the reducing union side!) to the injector of your liquid chromatograph following the procedure described for the separation column in the Instruction Manual. Start the flow. Connect the guard column to the separation column after sufficient solvent has exited to expel all air from the guard column.

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## HOW TO PACK THE GLASS GUARDGEL COLUMN



Remove the plug from one of the endings and replace it with the packing adaptor. Remove the opposite endfitting and plug. This will expose the glass guard column.

Fit the guard column into a laboratory clamp with the adaptor pointing down. Attach tubing from an aspirator or other gentle vacuum source to the packing adaptor and apply suction.

Resuspend the Guardgel in its container by adding about 10 ml of the appropriate shipping solvent. Pipet the slurry into the glass column using a medicine dropper or pipet. Continue adding gel until the surface of the gel bed is flush with the top of the glass column; remove excess packing with a spatula. Put the endfitting on the column and remove the packing adaptor from the other end. It is convenient to indicate the flow direction on the guard column holder or one of the fittings! Screw the plugs into the endfittings if the guard column will not be used right away.

Connect the guard column to the injector of your liquid chromatograph following the procedure described for the separation column in the Instruction Manual. Start the flow. Connect the guard column to the separation column after sufficient solvent has exited from the bottom endfitting to expel all air from the guard column.