



# TSK-GEL® Q-STAT and DNA-STAT Columns

## INTRODUCTION

TSK-GEL Q-STAT and TSK-GEL DNA-STAT anion exchange columns allow fast equilibration and analysis, as well as isolation, of complex biomolecules. Both TSK-GEL columns are packed with mono-disperse, non-porous resin particles of which the surface consists of an open access network of multi-layered anion exchange groups (see Figure 1). The TSK-GEL Q-STAT columns are packed with 7 or 10  $\mu\text{m}$  particles, the TSK-GEL DNA-STAT column with 5  $\mu\text{m}$  particles. The innovative bonding chemistry combined with a relatively large particle size result in a respectable loading capacity and a low operating pressure, attributes not found in traditional mono-disperse, non-porous resins.

Table 1 illustrates that despite the fact that surface area decreases with increasing particle size, the larger TSK-GEL Q-STAT and TSK-GEL DNA-STAT particles have higher binding capacities than the smaller particles used in TSK-GEL NPR columns. The novel bonding chemistry used in the preparation of the TSK-GEL STAT resin resulted in a dramatic increase in static binding capacity, more than compensating for the loss in external surface area of the larger particles.

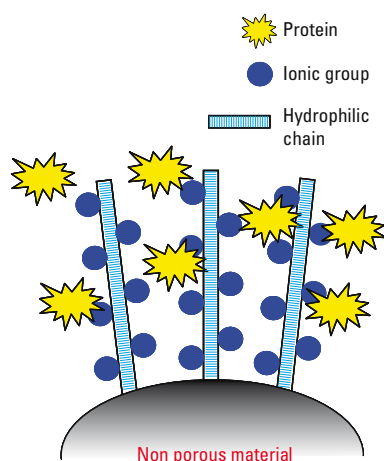


Figure 1

Property	TSK-GEL NPR Column	TSK-GEL DNA-STAT	TSK-GEL Q-STAT	
Particle size	2.5 $\mu\text{m}$	5 $\mu\text{m}$	7 $\mu\text{m}$	10 $\mu\text{m}$
Capacity*	9.1	38.6	27.0	20.9

\* Static binding capacity, in mg BSA/mg dry gel.

Table 1

## PRODUCT HIGHLIGHTS

- Very efficient chromatography for high as well as low MW solutes made possible by novel bonding chemistry and the absence of micro-pores
- High speed and high resolution analysis of biomolecules
- Higher adsorption capacities and lower pressures compared with smaller particle sized TSK-GEL NPR columns
- 7 or 10  $\mu\text{m}$  particles (TSK-GEL Q-STAT) and 5  $\mu\text{m}$  particles (TSK-GEL DNA-STAT)

## APPLICATIONS

### Nucleotides

Mono-, di-, and tri-nucleotides were separated with excellent peak shape on a TSKgel DNA-STAT column. The narrow, symmetrical peaks, as shown in Figure 2, demonstrate the absence of micro-pores on this new generation of non-porous resin columns. TSK-GEL DNA-STAT columns are also, as the name implies, first choice for large nucleic acid fragments.

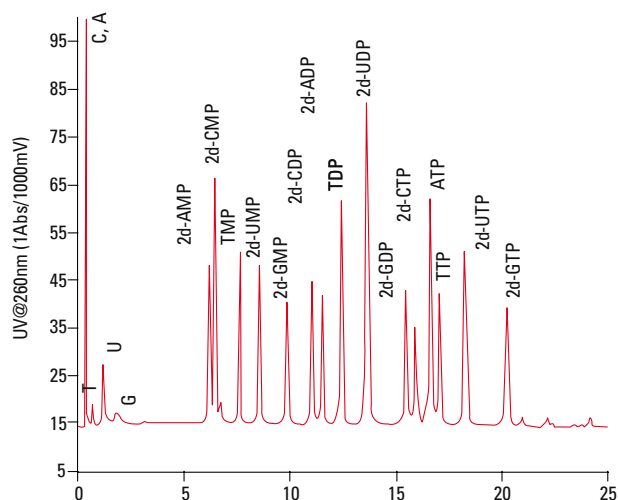
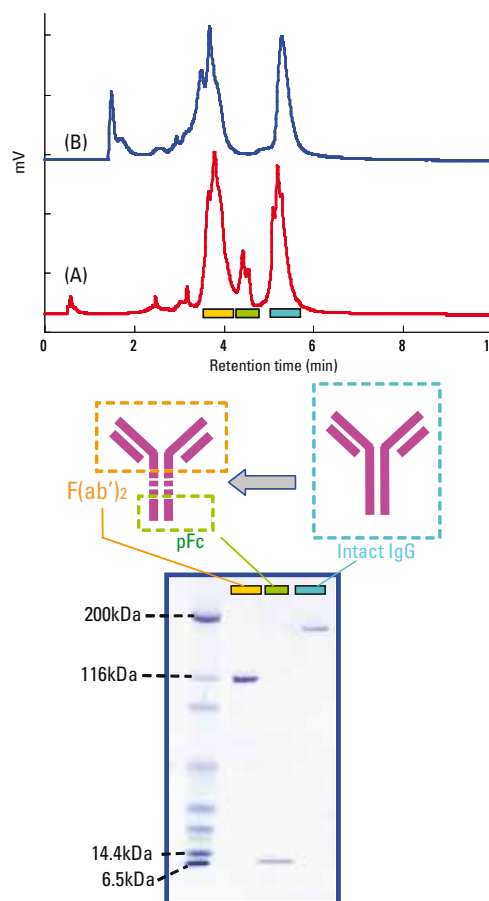


Figure 2

Column: TSKgel DNA-STAT, 5  $\mu\text{m}$ , 4.6 mm ID x 10.0 cm L  
 Eluent: A: 20 mmol/l Tris-HCl (pH 8.5)  
 B: 0.75 mol/l NaCl in buffer A  
 Gradient: 50% B (0 min), 75% B (25 min)  
 Flow rate: 0.8 ml/min  
 Detection: UV @ 260 nm

### Monoclonal Antibodies

The monoclonal antibody was digested using pepsin and separated on a TSKgel Q-STAT column and a competitive non-porous WAX column. As shown in Figure 3, three peaks were isolated from the TSKgel Q-STAT column and assigned as F(ab')<sub>2</sub>, pFc and intact IgG by SDS-PAGE. There wasn't any correlation between the peaks obtained on the competitive WAX column and SDS-PAGE.



➤ **FIGURE 3**

Column: A: TSKgel Q-STAT, 7 µm, 4.6 mm ID x 10 cm L  
 B: Competitor WAX, 10 µm, 4 mm ID x 25 cm L  
 Eluent: A: 20 mmol/l Tris-HCl (pH 8.5)  
 B: 0.5 mol/l NaCl in buffer A  
 Gradient: 0% B (0 min), 100% B (10 min)  
 Flow rate: 1.0 ml/min  
 Detection: UV @ 280 nm  
 Samples: pepsin digested mAb

**For further details of choice and selection of the TSK-GEL® column that best suits your particular separation needs, please contact us:**

**Tel. + 49 (0) 711 13257 0**  
**sales&marketing.sep@tosoh.com**  
 or  
**www.tskgel.com**

### **Ordering information**

#### **TSKgel ANION STAT COLUMNS**

Part-No	Description	Matrix	Housing	Dimensions
21960	TSKgel Q-STAT, 10 µm	Polymer	Stainless steel	3.0 mm ID x 3.5 cm L
21961	TSKgel Q-STAT, 7 µm	Polymer	Stainless steel	4.6 mm ID x 10 cm L
21962	TSKgel DNA-STAT, 5 µm	Polymer	Stainless steel	4.6 mm ID x 10 cm L