

# TOYOPEARL GigaCap® S-650S

High Capacity/High Resolution Cation Exchange Resin for Proteins

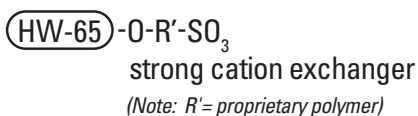
## TOYOPEARL PRODUCT OVERVIEW

### Introduction

Tosoh Bioscience has fused high binding capacity with high resolution to bring you TOYOPEARL GigaCap S-650S cation exchange resin. This resin is ideal for process scale applications including the polishing of monoclonal antibodies. A TOYOPEARL® HW-65 polymeric bead has been chemically modified to provide a greater number of cationic binding sites resulting in increased binding capacity. This capacity, combined with a 35 µm mean particle size, makes TOYOPEARL GigaCap S-650S ideal for high resolution applications.

TOYOPEARL GigaCap S-650S maintains high capacity (dynamic binding capacities approaching 165 g/L for gamma globulin) across a range of linear velocities, exhibits excellent pressure-flow characteristics (*Figure 1*) and the 20-50 µm particle size is stable up to 0.3 MPa.

STRUCTURE:



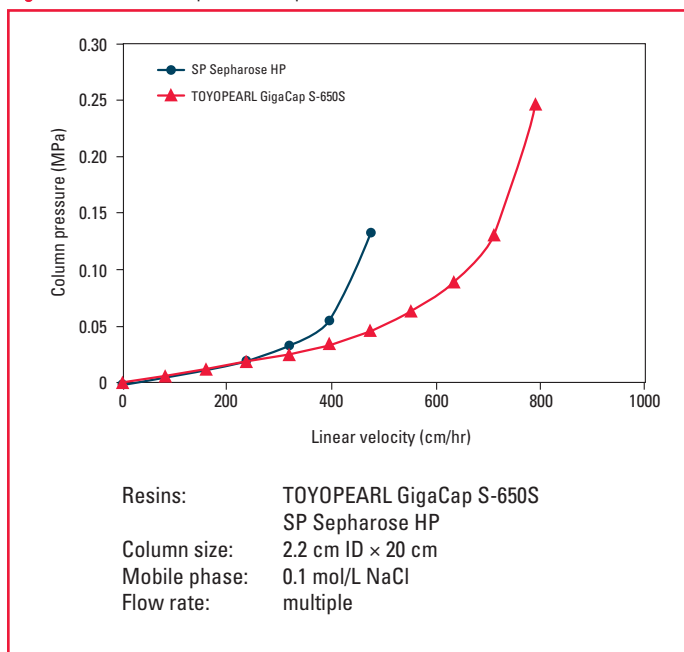
### Product Attributes

Pore size (mean):	100 nm
Particle size (mean):	35 µm
Pressure rating:	0.3 MPa
Shipping buffer:	20% ethanol
pH stability:	2-13
Shelf life (estimated):	10 years

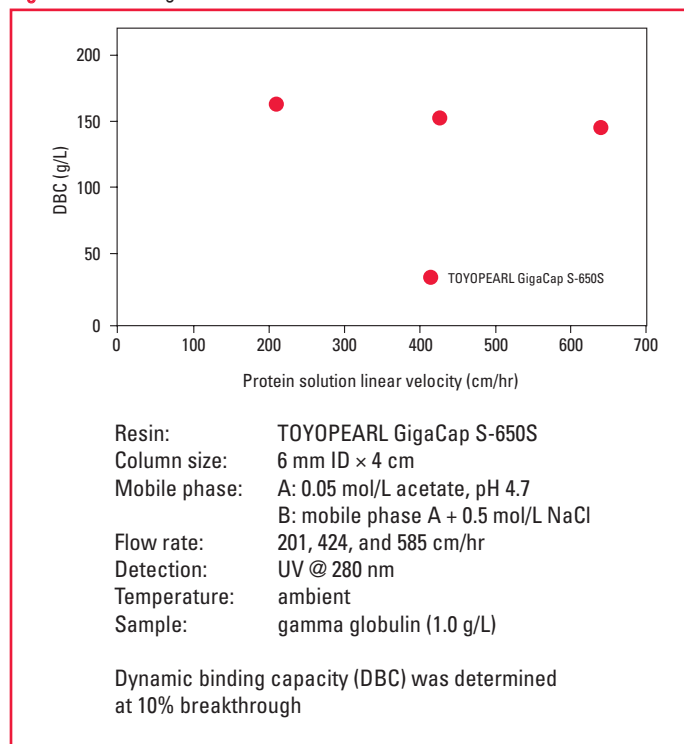
Good mass transfer kinetics enable the resin to maintain its dynamic binding capacity (DBC) at higher linear velocities (*Figure 2*). This fast uptake ability, when coupled with the narrow elution peak typical of TOYOPEARL GigaCap resins, results in smaller and more concentrated in-process pool volumes, thus reducing the amount of water for injection needed and increasing process throughput downstream.

TOYOPEARL GigaCap S-650S is base stable for a minimum of 100 Clean in Place (CIP) cycles with 0.5 mol/L NaOH, making multiple uses of the resin possible (*Figure 3*).

**Figure 1.** Flow rate vs. pressure drop



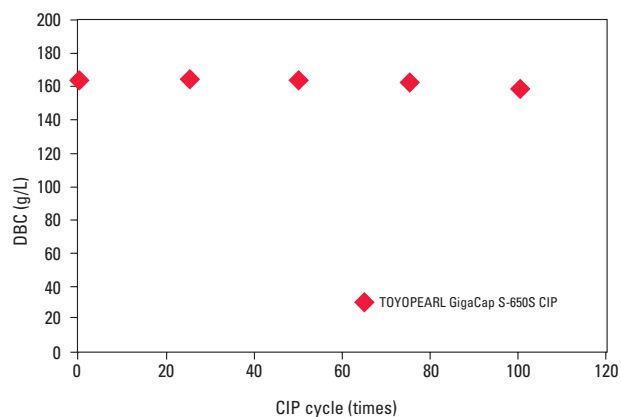
**Figure 2.** DBC at higher linear velocities



**TOSOH BIOSCIENCE**

TOSOH

**Figure 3.** CIP using 0.5 mol/L NaOH



**CIP conditions:**

Alkaline washing solution: 0.5 mol/L NaOH  
 Buffer washing solution: 50 mmol/L acetate, 0.5 mol/L NaCl, pH 4.7  
 Flow rate: 106 cm/hr (0.5 mL/min)  
 Alkaline wash volume: 27 CV/cycle  
 Contact time: 1 hr  
 Buffer wash volume: 10 CV/cycle

**DBC conditions:**

Column size: 6 mm ID × 4 cm  
 Mobile phase: A: 50 mmol/L acetate, pH 8.5  
                   B: mobile phase A + 0.5 mol/L NaCl  
 Flow rate: 212 cm/hr (1.0 mL/min)  
 Detection: UV @ 280 nm  
 Sample: gamma globulin (1.0 g/L)

## Ordering Information

Part#	Description	Resin Volume
22875	<b>TOYOPEARL GigaCap S-650S, 35 µm</b>	25 mL
22876	<b>TOYOPEARL GigaCap S-650S, 35 µm</b>	250 mL
22877	<b>TOYOPEARL GigaCap S-650S, 35 µm</b>	1 L
22878	<b>TOYOPEARL GigaCap S-650S, 35 µm</b>	5 L
22879	<b>TOYOPEARL GigaCap S-650S, 35 µm</b>	50 L

Tosoh Bioscience, TOYOPEARL and TOYOPEARL GigaCap are registered trademarks of Tosoh Corporation.



**TOSOH BIOSCIENCE**

TOSOH

TOSOH BIOSCIENCE LLC  
 3604 Horizon Drive, Suite 100  
 King of Prussia, PA 19406  
 Tel: 800-366-4875  
 email: [info.tbl@tosoh.com](mailto:info.tbl@tosoh.com)  
[www.tosohbioscience.com](http://www.tosohbioscience.com)

PO37  
 0413