

• **Cleaning**

Wash with 2 – 4 CV NaCl (1 – 2 M) and then with low ionic strength buffers at pH 4 – 9 or with 5 CV of 0.5 M NaOH (30 to 60 minutes are recommended). After treatment, neutralize immediately the column by washing with a buffered solution.

Thermal Stability and Storage

Temperature of use	2 – 30 °C (36 – 86 °F)
Shipping temperature	Ambient
Storage temperature	2 – 30 °C (36 – 86 °F) (2 – 8 °C / 36 – 46 °F once used)
Storage solution between runs	20 % ethanol / 150 mM sodium chloride
Caution	Must never be frozen

Ordering Information

Cat. No.	Description
PRC05X050QCHDF01	PRC Column 5x50 Q Ceramic HyperD F
PRC05X050CMCHDF01	PRC Column 5x50 CM Ceramic HyperD F

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USD 2488

USER GUIDE

PRC Columns

Q, CM Ceramic HyperD® F

Prepacked Columns for Ion Exchange Chromatography

Description

Pall® PRC chromatography columns have been developed for fast selectivity screening of Ceramic **HyperD® F** ion exchange sorbents. They guarantee optimal and consistent performance:

- 1 mL prepacked columns, ready- and easy-to-use.
- Direct connection to commonly used laboratory chromatography systems, e.g., ÄKTA*.
- High packing efficiency (> 2,500 plates/meter).
- Fully scalable: once screened, the sorbent can be operated in the same conditions at either laboratory, pilot or production scale.

Main Properties of Q, CM Ceramic HyperD F Sorbents

Ceramic **HyperD F** ion exchangers employ a high-capacity hydrogel polymerized within the large pores of a rigid ceramic bead. The design combines the desirable characteristics of a soft, high-capacity hydrogel with the high dimensional stability of a rigid ceramic bead. Rapid uptake of product into the hydrogel is achieved as a result of a novel mass transfer mechanism known as "enhanced diffusion".

For more details on Ceramic **HyperD F** sorbents, refer to Pall Product Information Insert No. 290004.

Pall® PRC Columns

Instructions for Use

Connect your prepacked column to an appropriate system (refer to Table I (4) for connection instructions, depending on your chromatography system). Check that the connections are thoroughly tightened manually to avoid any leakage. All buffers and solutions should be passed through a 0.2 µm filter. Then proceed as follows:

• **Equilibration**

Before a first use and to equilibrate the sorbent, wash the column with at least 10 CV (column volumes) of 1 M NaCl to remove the 20 % ethanol / 150 mM sodium chloride storage solution, using a flow rate of 300 cm/h (0.98 mL/min, 1 min RT [residence time]). Each buffer should be at a 50 – 100 mM concentration minimum. We recommend for Q sorbent a buffer of 50 – 100 mM Tris-HCl, and for CM sorbent a buffer of 50 – 100 mM sodium acetate + 50 – 100 mM NaCl.

At the end of equilibration, make sure that the ionic strength and the pH are identical at both the inlet and the outlet of the column.

• **Loading**

Inject the sample through the pump or a loop at 150–200 cm/h (0.50 – 0.65 mL/min, 2.0–1.5 min RT). Load 1 to 20 mg for first applications. After optimization, increase to 300 cm/h (0.98 mL/min, 1 min RT)

• **Elution**

For the first use of Ceramic **HyperD F** ion exchangers in the separation of an unknown mixture, our recommendation is to make an ionic strength linear gradient using sodium chloride up to 0.5 or 1 M.

Resolution is improved by using a lower flow rate, especially for large molecules. However, decreasing the gradient slope is the most effective method to increase column resolution.

Table I. Specifications

Q, CM Ceramic HyperD F Sorbents	
Volume	1 mL (5 mm ID x 50 mm)
Average particle size	50 µm
Dynamic capacity: <ul style="list-style-type: none"> • Q (quaternary amine) • CM (carboxymethyl) 	≥ 85 mg/mL ⁽¹⁾ ≥ 60 mg/mL ⁽²⁾
Ionic groups	≥ 250 µeq/mL
Storage solution	20 % ethanol / 150 mM NaCl
Working pressure ⁽³⁾	< 1.5 bar (22 psi)
Column	
Outer dimensions	10 x 100 mm
Materials of construction <ul style="list-style-type: none"> • Body and end caps • 17 µm frit 	Molded polypropylene PP / PE (Polypropylene / Polyethylene)
Connections ⁽⁴⁾	Built-in 10–32 fittings
Maximum operating pressure	20 bar (290 psi)

(1) 5 mg/mL BSA in 50 mM Tris-HCl, pH 8.6, 200 cm/h. **(2)** 5 mg/mL hu IgG in 50 mM sodium acetate, 100 mM NaCl, pH 4.0, 200 cm/h. **(3)** Pressure at 600 cm/h equivalent to 2 mL/min in 0.1 M NaCl. **(4)** For HPLC/MPLC systems: direct connection. For ÄKTA* system: use a standard 10–32 male / M6 female adaptor (not supplied). For systems equipped with ¼–28 connections: use a standard 10–32 male / ¼–28 female adaptor (not supplied).