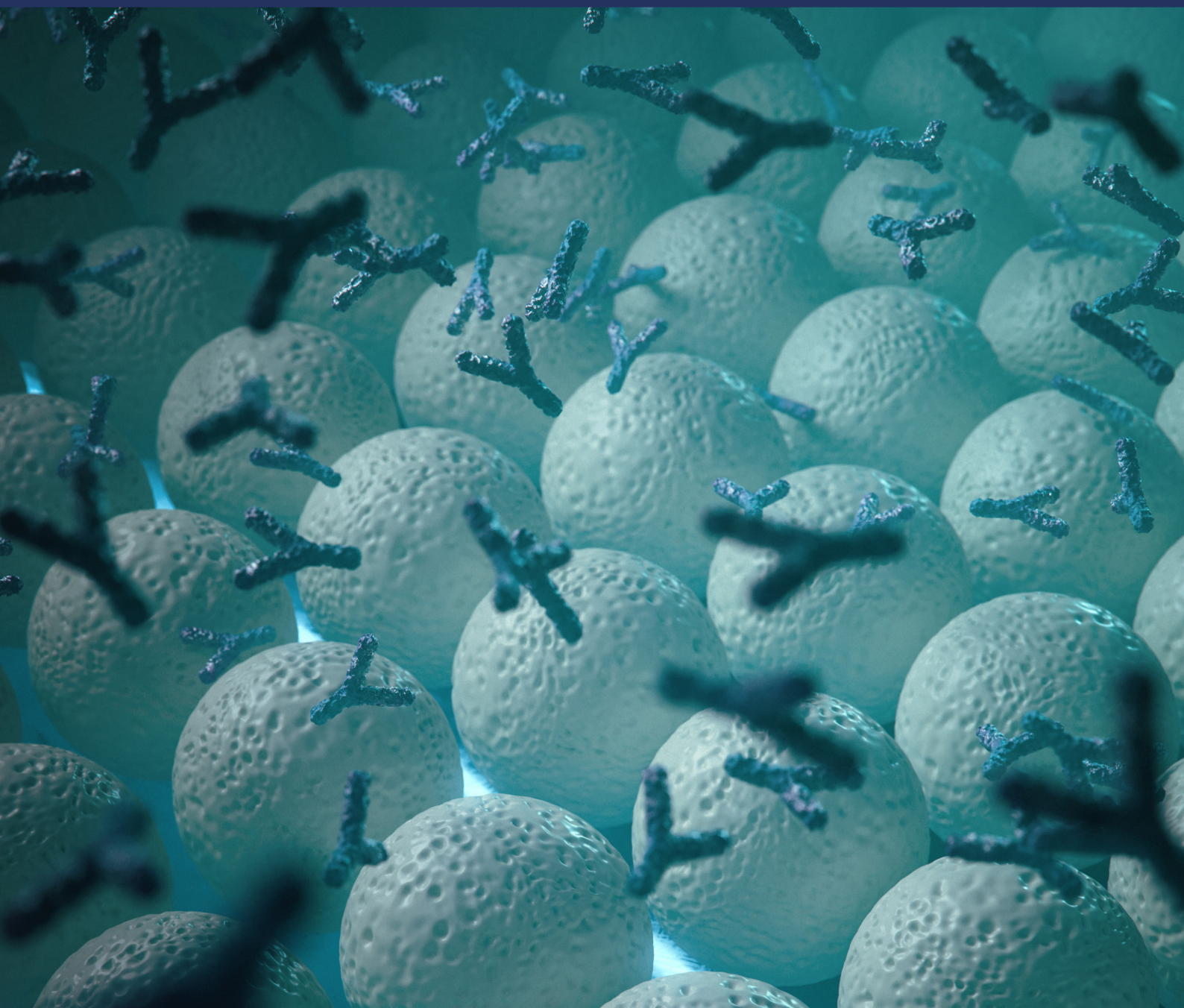
Praesto®

Ion exchange resins

Purolite®

Anion and cation exchange chromatography resins for monoclonal antibody and recombinant protein purification



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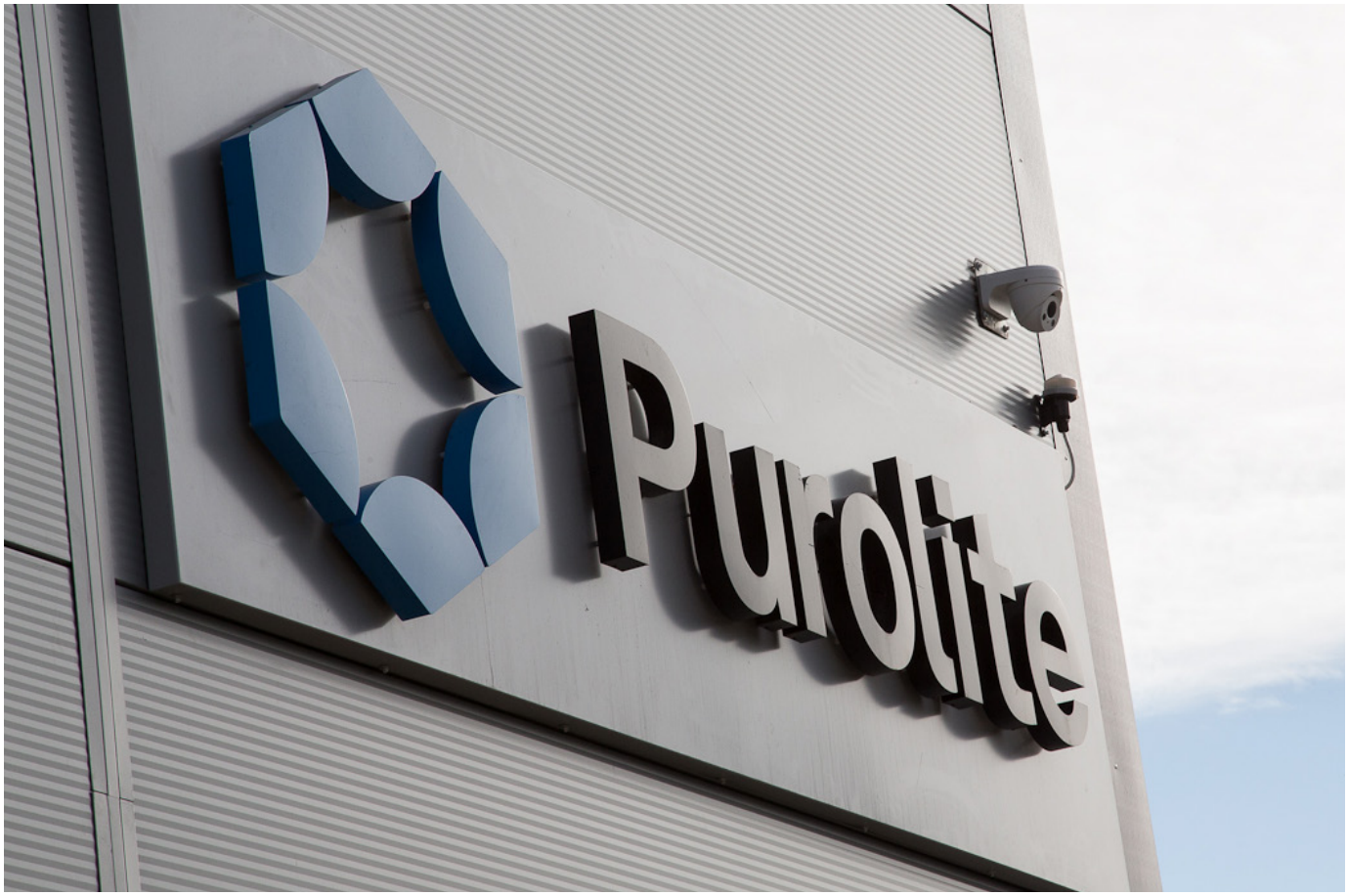
Clicking on the section in the table of contents will take you to that page.

Contents



Why choose Purolite?

Since 1981, Purolite has grown into the world's premier resin-based separation, purification and extraction technology manufacturer and innovation leader, with manufacturing facilities, advanced research laboratories and over 1100 people employed world-wide.

Purolite focuses on any resin applications which involve end-user interactions with people, bringing innovative thinking and distinguished history of resin technology expertise to the global Life Sciences marketplace.

We provide APIs, enzyme carriers, immobilized enzymes and chromatographic resins of the highest quality, to support research and development and production-scale applications in global pharmaceutical, food and beverage, bioprocessing, cosmetics and fine chemical markets.

We bring innovative thinking and resin technology expertise to the global Life Sciences marketplace

Quality

Purolite maintains a global Quality Management System (QMS) which supports BSI requirements of ISO 9001. Compliance is monitored and maintained through a quality assurance and regulatory team, who conduct internal audits to ensure operations meet the guidelines and protocols for equipment and procedures. Our teams are given continuous training on quality processes to ensure batch-to-batch consistency, and the highest product quality.

Security of supply

Ensuring reliable availability of our resins is vital to customers, and of paramount importance to Purolite. As a leading supplier of resin to the world's most regulated industries, we recognize that our resins are critical purification products.

As such, a real-world security of supply system is in place to support your process requirements for business continuity. Supply risk is managed end-to-end, with a global network of qualified suppliers. Long-term supply agreements with periodic audits ensure consistency and 'fit for purpose' performance. Purolite has manufacturing facilities at 4 strategic locations in the USA, Asia and Europe. Should Praesto production facilities in the UK be adversely affected to a level that would disrupt business operations, Purolite has designed manufacturing processes that facilitate rapid deployment at a different location. In this event, a rebuild plan would be implemented at our facility in Romania using an identical, modular design of the UK-based production facility.

Expanding manufacturing capabilities to meet global demand

Our state-of-the-art UK manufacturing facilities are capable of supplying one-third of global demand for all agarose-based bioprocessing resins. In addition to this, as of 2021 we have added a US-based facility to address the global demand for our pharmaceutical and life sciences products. This expansion will ensure security of supply with increased production and shorter product lead times. The new facility, located in King of Prussia near our global headquarters in Pennsylvania will feature two cleanrooms to manufacture active ingredients (APIs) and excipients and an agarose manufacturing facility equipped with our proprietary jetting technology for large-scale production of our Praesto agarose resins. We will also be offering enhanced warehousing options at our US site to allow for the secure storage of customer orders in an advantageous location.

This expansion will mean that Purolite is the only Protein A resin manufacturer to have two different manufacturing sites in two different continents.

Selecting the right resin for your application…

Use the table below to see what differentiates our Praesto ion exchange resin ranges and where you can find more information on the resin that is right for your desired application.

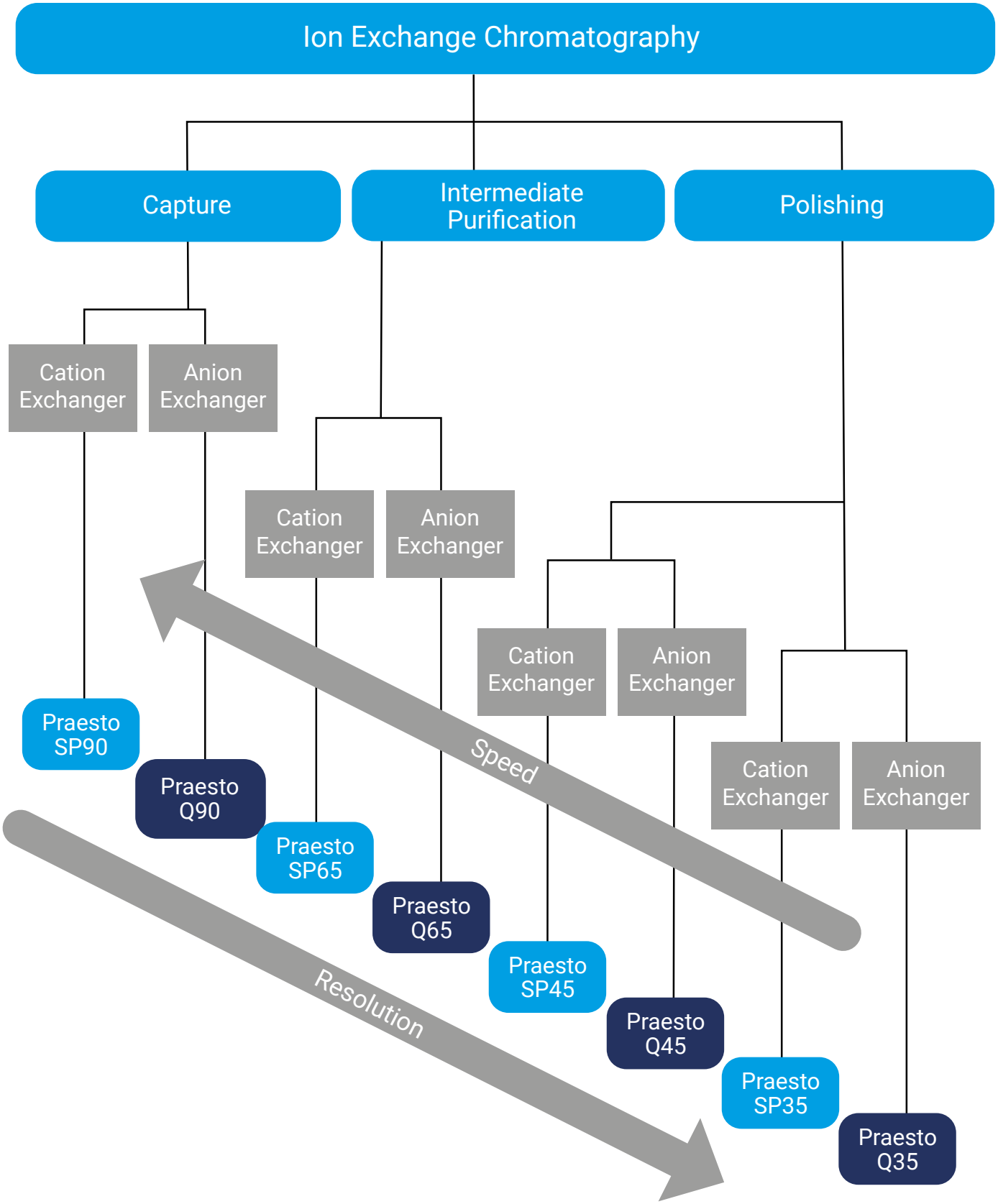
All Praesto products feature an advanced, highly cross-linked agarose base matrix that demonstrates excellent pressure/flow characteristics. The Praesto range of ion exchange chromatography resins are designed for efficient capture, intermediate purification and polishing with strong and weak cation and anion exchangers to meet your process goals from speed to resolution. The table below shows the general characteristics of Praesto ion exchangers. Praesto SP and Q are compatible with all ranges of temperature, pH and chemical and physical conditions typically used in biopharmaceutical processes.

- ✓ Self-pack or pre-packed columns
- ✓ Our column packing experts can work with your scientists
- ✓ Secure supply at short lead times

	SP				Q			
Base matrix	Agarose				Agarose			
Particle size (dv50)	Jetted 35	SP45	SP65	SP90	Jetted 35	Q45	Q65	Q90
Dynamic binding capacity – mg protein per ml resin.	> 90 mg IgG*	> 80 mg IgG*	> 70 mg IgG*	> 50 mg IgG*	> 80 mg BSA**	> 70 mg BSA**	> 60 mg BSA**	> 50 mg BSA**
Flow velocity+	Up to 120 cm/h (30 x 20 cm)	Up to 200 cm/h (20 x 20 cm)	Up to 350 cm/h (20 x 20 cm)	Up to 550 cm/h (20 x 20 cm)	Up to 120 cm/h (20 x 20 cm)	Up to 200 cm/h (20 x 20 cm)	Up to 350 cm/h (20 x 20 cm)	Up to 550 cm/h (20 x 20 cm)
Average particle size	35 µm	45 µm	65 µm	90 µm	35 µm	45 µm	65 µm	90 µm
pH stability	4 – 13	4 – 13	4 – 13	4 – 13	3 – 13	3 – 13	3 – 13	3 – 13
Recommended storage	20% ethanol				20% ethanol			
Ionic capacity (mmol/mL resin)	0.11 - 0.16				0.14 - -0.18			
Manufacturing method	Jetting	Batch Emulsification			Jetting	Batch Emulsification		
Chemical stability	All commonly used aqueous buffers, 1M NaOH, 8M urea, 6M guanidine hydrochloride, 30% isopropanol and 70% ethanol							

*Dynamic binding capacity – 10 % breakthrough at 6 minutes residence time, 50 mM sodium acetate, pH 4.7.
** Dynamic binding capacity – 10 % breakthrough at 6 minutes residence time, 50 mM Tris, pH 8.5.
*** Dynamic binding capacity – 10 % breakthrough at 6 minutes residence time, 50 mM sodium acetate, 80 mM NaCl, pH 4.7
+Pressure flow curves generated using 0.1 M NaCl at 20 °C.

Resin selection guide



All Praesto resins are available in the following pre-packed/pre-qualified columns or bulk options.

OPUS® Robocolumn®

Volume:
0.5 ml – 0.6 ml

Use:
For use with robotic workstations for HTPD work.

OPUS® MiniChrom Column

Volume:
0.2 ml – 10 ml

Use:
For process development and parameter screening as well as small scale purification or sample preparation.

HT Column

Volume:
1 mL – 5 mL

Use:
For efficient resin screening for further optimization and verification.

OPUS® 5 80R Column

Volume:
0.5 L – 150 L

Use:
Designed to meet the chromatography requirements of larger 1000L and 2000L single-use bioreactors.

Bulk Resin

Volume:
10 ml – 10 L

Manufacturing tailored to your process...

Jetting is our proprietary manufacturing technology which produces resins with a very narrow particle size distribution, providing enhanced performance and column packing consistency.

Typical particle size range: 50 – 250 micron
Uniformity Coefficient <1.3

Batch emulsification is the industry standard for producing chromatography resins. It is a robust, proven technology resulting in a relatively broad particle size distribution.

Typical particle size range: 100 – 1200 micron
Uniformity Coefficient <1.6

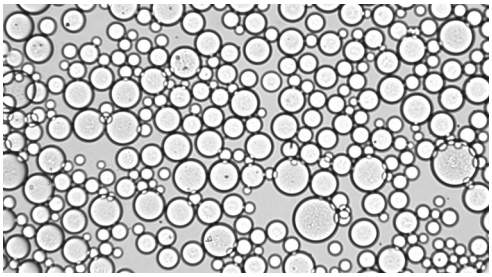
Praesto SP & Q

Batch emulsified SP & Q available in 45, 65 and 90 µm particle sizes

Jetted SP & Q available in uniform 35 µm particle size only

About Praesto SP & Q

Praesto SP (cation) and Praesto Q (anion) chromatography resins are designed for lab to process-scale purifications of recombinant proteins and other biomolecules. Available in a range of particle sizes covering their use in high-productivity capture steps as well as high-resolution polishing applications. These resins offer great flow and pressure drop characteristics, excellent chemical and physical stability and are readily scalable.



Main advantages

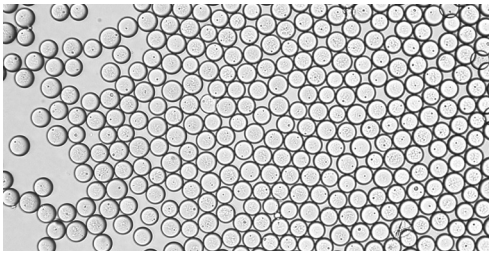
High dynamic binding capacity

Offered in a range of particle sizes to suit customer needs

Secure, validated supply and regulatory support

About Praesto Jetted 35

Praesto SP & Q are available in a 35 µm particle size range to provide high resolution polishing resins suitable for large scale bioprocessing. Manufactured using our proprietary jetting technology, these resins demonstrate superior performance characteristics including increased pressure/flow properties, improved resolution, more consistent column packing reproducibility and higher dynamic binding capacity.



Main advantages

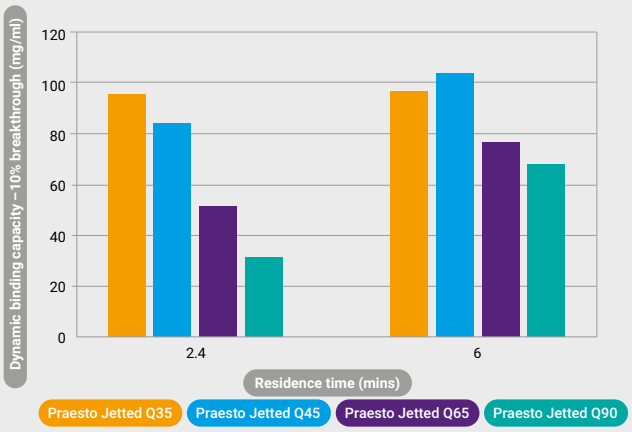
Uniform particle size

High dynamic binding capacity

Secure, validated supply and regulatory support

Performance data

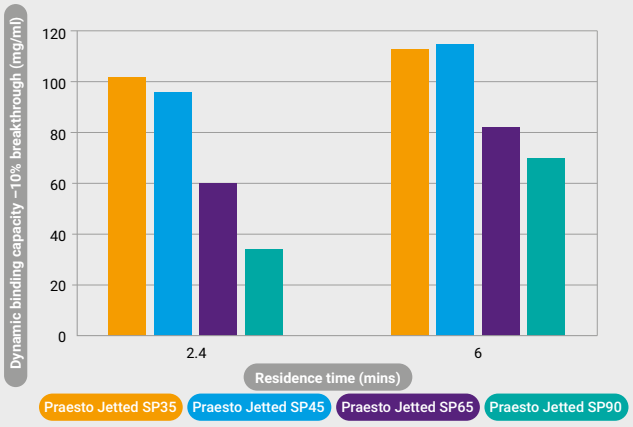
Praesto AEX - Capacity - BSA



Dynamic binding capacity – Anion exchangers – BSA

- Omnifit 0.66 x 3 cm column (10 mm, BH 3 cm, CV 3.42 ml)
- Bovine Serum Albumin 5 g/L
- 50 mM Tris, pH 8.5
- Bio-Rad NGC Quest 10 system

Praesto CEX - Capacity - hIgG

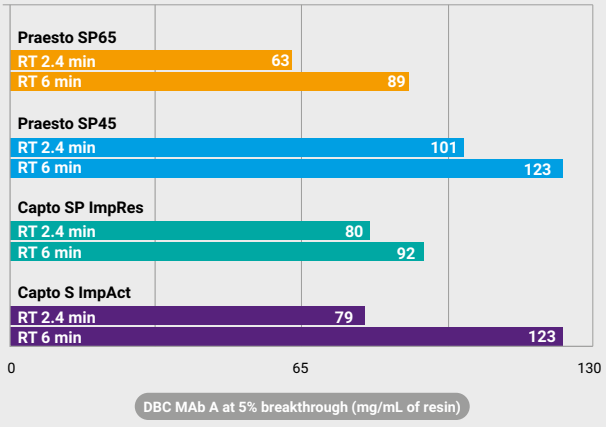


Dynamic binding capacity – Cation Exchangers – hIgG

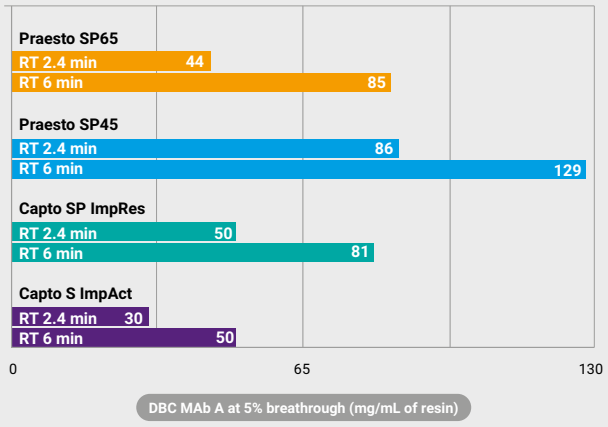
- Omnifit 0.66 x 3 cm column (10 mm, BH 3 cm, CV 3.42 ml)
- hIgG 5 g/L
- 50 mM sodium acetate, pH 4.7
- Bio-Rad NGC Quest 10 system

Dynamic binding capacity – mAb – Cation exchangers

5% DBC data for MAb A on four resins at two different residence times



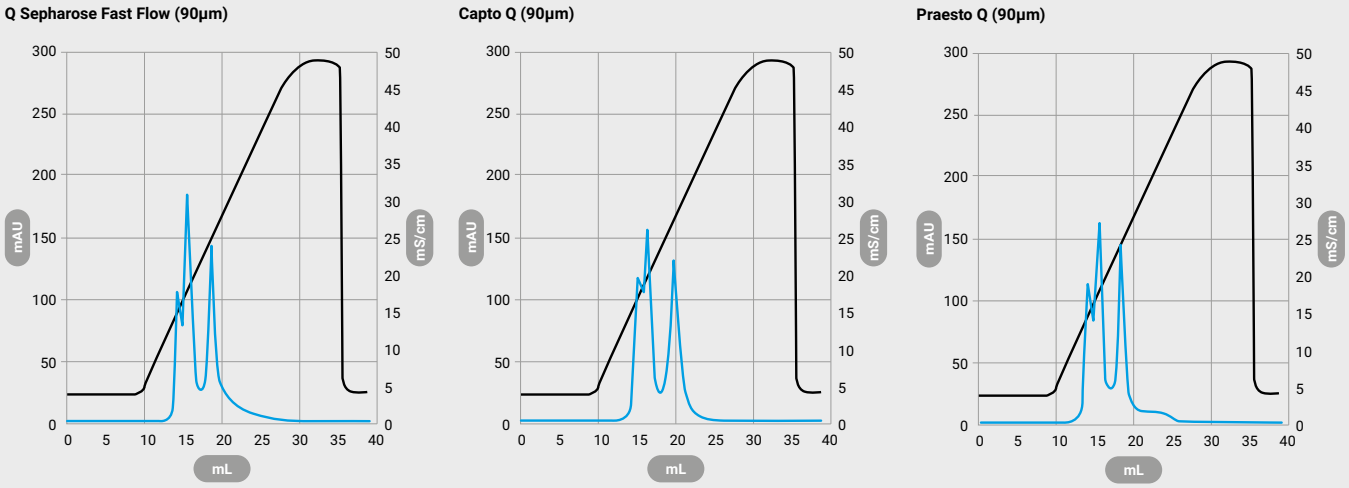
5% DBC data for MAb B on four resins at two different residence times



5% DBC data for mAb A and mAb B on 4 different resins at 2.4 and 6 minutes residence times

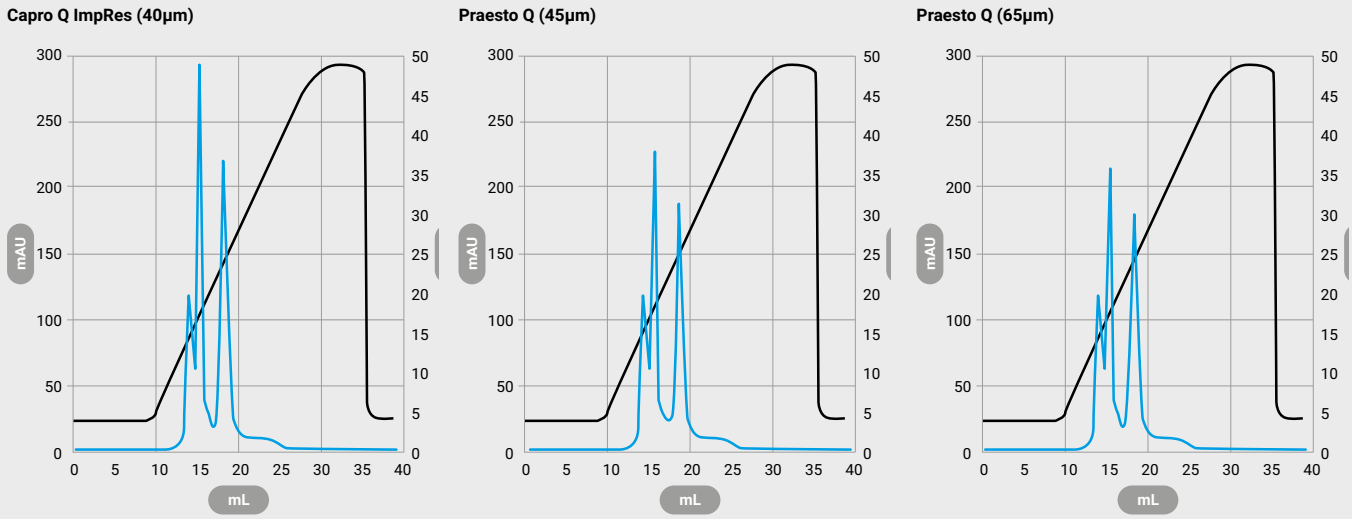
Resolution Praesto Q90

Anion Selectivity



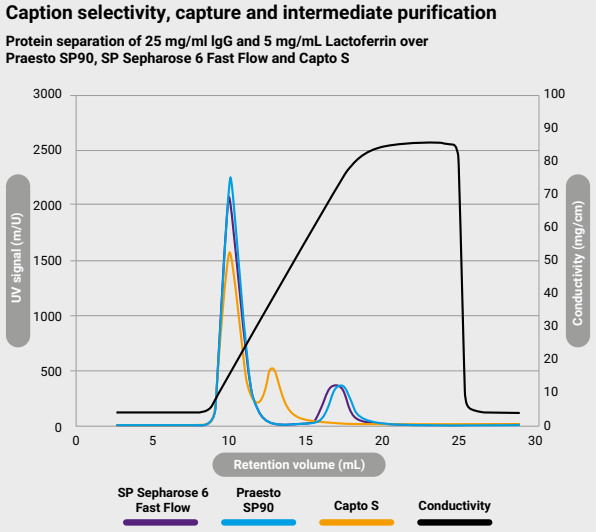
Capture and intermediate purification: chromatograms showing the separation of a-Lactalbumin (left peak) and trypsin inhibitor (right peak). Praesto Q90 demonstrates selectivity equal to Q Sepharose Fast Flow and Capto Q.

Resolution – Praesto Q45 & Q65

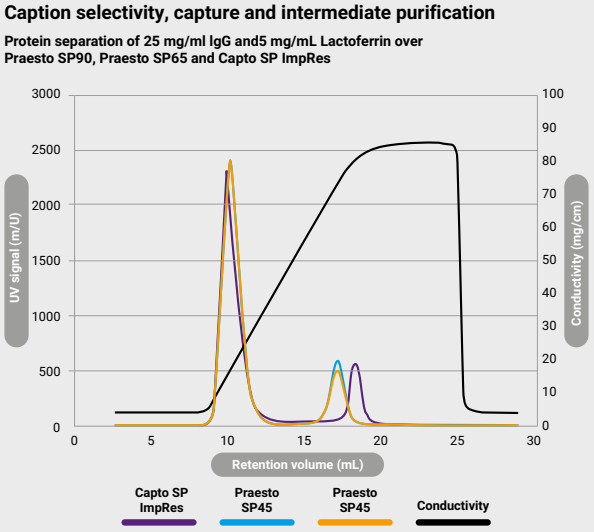


Intermediate purification and polishing: chromatograms showing the separation of a-Lactalbumin (left peak) and trypsin inhibitor (right peak), comparing Praesto Q45 (middle) and Praesto Q65 (right) with Capto Q ImpRes (left).

Resolution – Praesto SP45, SP65 & SP90

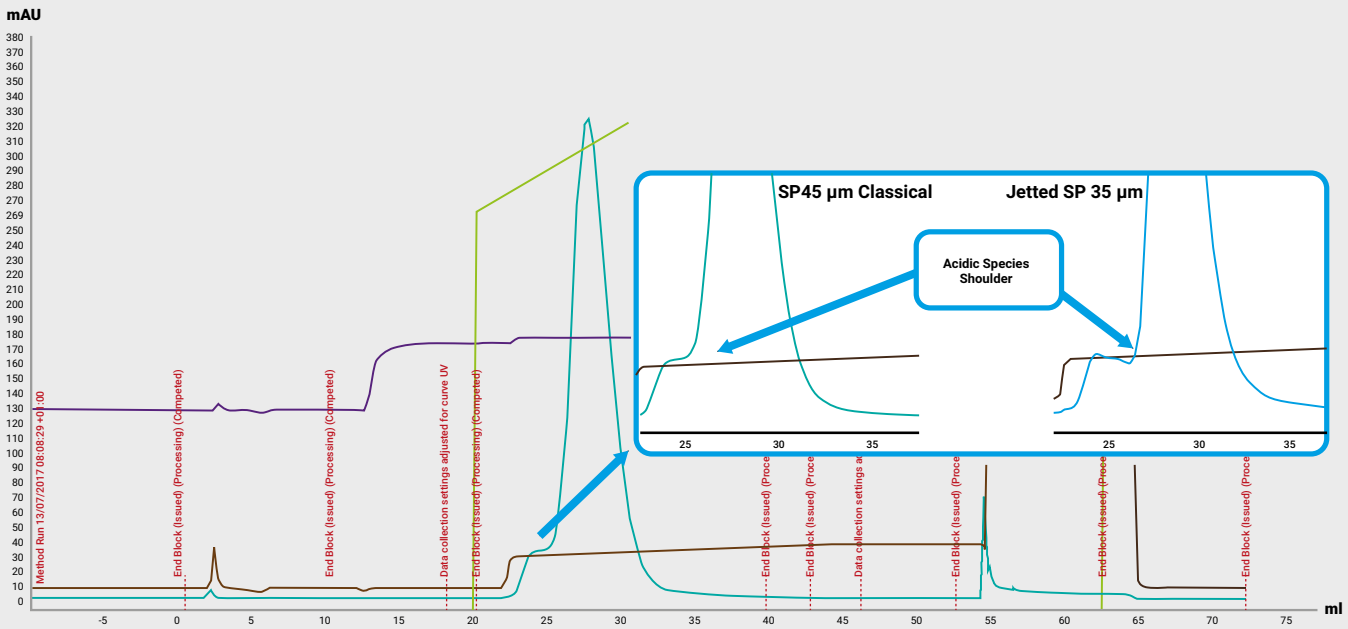


Capture and intermediate purification: comparison of selectivity of SP Sepharose Fast Flow, Praesto SP90 and Capto S

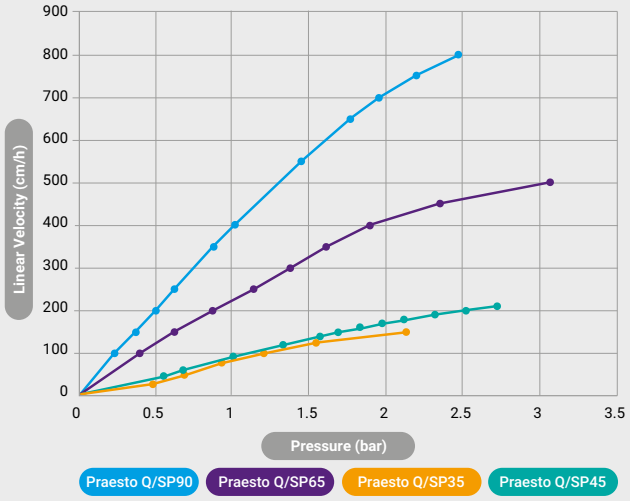


Intermediate purifucation and polishing: comparison of selectivity of Capto SP ImpRes, Praesto SP45 and Praesto SP65

Biosimilar Separation - Acidic species in eluate – Praesto SP35



Pressure flow – Praesto IEX resins



Resin	Column	Diameter (cm)	Bed Height (cm)
Praesto Jetted Q/ SP35	BPG 300	20	20
Praesto Q/SP45	AxiChrom 200	20	20
Praesto Q/SP65	AxiChrom 200	20	20
Praesto Q/SP90	AxiChrom 200	30	20

Tested with 0.1 M NaCl at 20°C

Ordering information

To place your order simply contact us via email or telephone and quote the product codes found in the following tables.

Praesto SP

Bulk Resin

Resin range	Quantity	Order number
Jetted SP35	25 ml	PR00432-166
	100 ml	PR00432-164
	500 ml	PR00432-165
	1 L	PR00432-310
	5 L	PR00432-311
	10 L	PR00432-312
SP45	25 ml	PR00242-166
	100 ml	PR00242-164
	500 ml	PR00242-165
	1 L	PR00242-310
SP65	25 ml	PR00262-166
	100 ml	PR00262-164
	500 ml	PR00262-165
	1 L	PR00262-310
SP90	25 ml	PR00292-166
	100 ml	PR00292-164
	500 ml	PR00292-165
	1 L	PR00292-310

Pre-packed columns

Resin range	Quantity	Order number
Jetted SP35	HT Column 5 x 1 ml*	PR00432-575
	HT Column 5 x 5 ml*	PR00432-576
SP45	MiniChrom 1 ml	PR00242-175
	MiniChrom 5 ml	PR00242-176
	RoboColumn 200 ul	PR00242-174
	HT Column 5 x 1 ml*	PR00242-575
	HT Column 5 x 5 ml*	PR00242-576
SP65	MiniChrom 1 ml	PR00262-175
	MiniChrom 5 ml	PR00262-176
	RoboColumn 200 ul	PR00262-174
	HT Column 5 x 1 ml*	PR00262-575
	HT Column 5 x 5 ml*	PR00262-576
SP90	MiniChrom 1 ml	PR00292-175
	MiniChrom 5 ml	PR00292-176
	RoboColumn 200 ul	PR00292-174
	HT Column 5 x 1 ml*	PR00292-575
	HT Column 5 x 5 ml*	PR00292-576

*HT columns available in packs of 5 only

Praesto Q

Bulk Resin

Resin range	Quantity	Order number
Jetted Q35	25 ml	PR00436-166
	100 ml	PR00436-164
	500 ml	PR00436-165
	1 L	PR00436-310
	5 L	PR00436-311
	10 L	PR00436-312
Q45	25 ml	PR00246-166
	100 ml	PR00246-164
	500 ml	PR00246-165
	1 L	PR00246-310
Q65	25 ml	PR00266-166
	100 ml	PR00266-164
	500 ml	PR00266-165
	1 L	PR00266-310
Q90	25 ml	PR00296-166
	100 ml	PR00296-164
	500 ml	PR00296-165
	1 L	PR00296-310

Pre-packed columns

Resin range	Quantity	Order number
Jetted Q35	HT Column 5 x 1 ml*	PR00436-575
	HT Column 5 x 5 ml*	PR00436-576
Q45	MiniChrom 1 ml	PR00246-175
	MiniChrom 5 ml	PR00246-176
	RoboColumn 200 ul	PR00246-174
	HT Column 5 x 1 ml*	PR00246-575
	HT Column 5 x 5 ml*	PR00246-576
Q65	MiniChrom 1 ml	PR00266-175
	MiniChrom 5 ml	PR00266-176
	RoboColumn 200 ul	PR00266-174
	HT Column 5 x 1 ml*	PR00266-575
	HT Column 5 x 5 ml*	PR00266-576
Q90	MiniChrom 1 ml	PR00296-175
	MiniChrom 5 ml	PR00296-176
	RoboColumn 200 ul	PR00296-174
	HT Column 5 x 1 ml*	PR00296-575
	HT Column 5 x 5 ml*	PR00296-576

*HT columns available in packs of 5 only

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Poland
Romania
Russia
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UK
Ukraine
USA
Uzbekastan

Americas
Purolite Corporation
2201 Renaissance Blvd.
King of Prussia, PA 19406
T +1 800 343 1500
T +1 800 668 9090
F +1 800 260 1065
americas@purolite.com

EMEA
Purolite Ltd
Unit D
Llantrisant Business Park
Llantrisant, Wales, UK
T +44 1443 229334
F +44 1443 227073
emea@purolite.com

FSU
Purolite Ltd.
Office 6–1
36 Lyusinovskaya Str.
Moscow, Russia
115093
T +7 495 363 5056
F +7 495 564 8121
fsu@purolite.com

Asia Pacific
Purolite China Co. Ltd.
Room 707, C Section
Huanglong Century Plaza
No. 3 Hangda Road
Hangzhou, Xhejiang, China 310007
T +86 571 876 31382
F +86 571 876 31385
asiapacific@purolite.com

Purolite, the leading manufacturer of quality ion exchange, catalyst, adsorbent and specialty high-performance resins, is the only company that focuses 100% of its resources on the development and production of resin technology.

We're ready to solve your process challenges. For further information on Purolite products and services, visit www.purolite.com or contact your nearest Technical Sales Office.

www.purolite.com