

PRODUCT INFORMATION

Purolite Product Guide

Inside you will find a broad overview of the Characteristics and Applications of Purolite products. This guide is divided by Product Type, Industry or Application.

PRODUCT SUMMARY GUIDE

Inside this Product Summary Guide you will find a broad overview of the characteristics and applications of Purolite products. For more detailed information on any product or to find a product for an application not mentioned, please go to www.purolite.com or contact the closest Purolite regional office to you listed on the back cover.

INTRODUCTION

Founded in 1981, Purolite is a leading manufacturer of ion exchange, catalyst, adsorbent and specialty resins. With global headquarters in the United States, Purolite is the only company that focuses 100% of its resources on the development and production of resin technology.

Responding to the needs of our customers, Purolite has built the largest technical sales force in the industry, the widest variety of products and five strategically located Research and Development groups. Our ISO 9001 certified manufacturing facilities in the U.S.A, Romania and China combined with more than 40 sales offices in 30 countries ensure complete worldwide coverage.



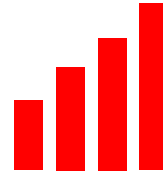
PREMIER PRODUCTS

The quality and consistency of our products is fundamental to our performance. Throughout all Purolite plants, production is carefully controlled to ensure that our products meet the most stringent criteria, regardless of where they are produced.



RELIABLE SERVICE

We are technical experts and problem solvers. Reliable and well trained, we understand the urgency required to keep businesses operating smoothly. Purolite employs the largest technical sales organization in the industry.



INNOVATIVE SOLUTIONS

Our continued investment in research & development means we are always perfecting and discovering innovative uses for ion exchange resins and adsorbents. We strive to make the impossible possible.

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STRONG ACID CATION EXCHANGERS

PUROLITE®	TYPE	IONIC FORM	TOTAL VOLUME CAPACITY (eq/l)	MOISTURE RETENTION (%)	SPECIFIC GRAVITY	REVERSIBLE SWELLING (%)	REMARKS & APPLICATIONS
C100	Gel Polystyrenic	Na ⁺	2.0	44 – 48	1.29	Na → H 8	Primary softening and demineralization resin.
C100E	Gel Polystyrenic	Na ⁺	1.9	46 – 50	1.27	Ca → Na 8 Na → H 10	Softening and demineralization resin, widely used in industrial and domestic applications. Potable water grade.
C120E	Gel Polystyrenic	Na ⁺	1.5	56 – 60	1.22	Ca → Na 12	Designed especially for small scale domestic softening. Potable water grade.
C100X10	Gel Polystyrenic	Na ⁺	2.2	40 – 43	1.30	Na → H 6	Excellent resistance to oxidation. Higher density cation resin offering good separation from anion resins in mixed bed applications and weak acid cation resins in layered beds.
SGC650	Supergel™ Polystyrenic	Na ⁺	2.2	40 – 43	1.30	Na → H 8	Uniform particle size used for condensate polishing and make up MB's. Offers excellent physical strength and high resistance to OSA.
C150	Macroporous Polystyrenic	Na ⁺	1.8	48 – 53	1.25	Na → H 4	Macroporous structure offers high resistance to OSA. Employed in areas of very difficult operating conditions such as condensate treatment and process applications.
C160	Macroporous Polystyrenic	Na ⁺	2.4	35 – 40	1.30	Na → H 4	Higher cross linked macroporous resin with higher exchange capacity offering excellent resistance to oxidation. For process applications, such as non-ferrous hydrometallurgy and in the treatment of industrial waste streams.

NOTE: Above products also available in the H⁺ form.

WEAK ACID CATION EXCHANGERS

PUROLITE	TYPE	IONIC FORM	TOTAL VOLUME CAPACITY (eq/l)	MOISTURE RETENTION (%)	SPECIFIC GRAVITY	REVERSIBLE SWELLING (%)	REMARKS & APPLICATIONS
C104Plus	Porous Polyacrylic	H ⁺	4.5	45 – 55	1.19	H → Ca 20 H → Na 70	High capacity regenerable dealkalization resin with good exchange kinetics. Also available in food grade as C104EPlus.
C106	Macroporous Polyacrylic	H ⁺	2.7	54 – 64	1.15	H → Ca 15 H → Na 50	Higher resistance to OSA. For process applications, such as antibiotics extraction from fermentation broths and treatment of ammoniacal condensates.
C107E	Macroporous Polyacrylic	H ⁺	3.6	53 – 58	1.18	H → Ca 25 H → Na 90	Food Grade, specifically designed dealkalization resin for use in small cartridges for domestic applications. Not usually regenerated.
C115E	Porous Polymethacrylic	H ⁺	3.5	46 – 53	1.10	H → Ca 40 H → Na 100	Very weakly acidic for process applications especially in the pharmaceutical industry. Recommended for the CARIX™ process.

NOTE: Resins with partial conversion in Na/Mg/Ca form are available for cartridge applications.

PARTICLE SIZE DISTRIBUTION – CATION EXCHANGERS

PUROLITE GRADE	NOMINAL PARTICLE SIZE (μm)	MAX % BELOW LOWER LIMIT	UNIFORMITY COEFFICIENT	REMARKS & APPLICATIONS
STD	300 – 1200	1% < 300	≤ 1.7	Standard grade.
MB	425 – 1200	2% < 425	≤ 1.6	Mixed bed grade.
TL Gel	550 – 1000	1% < 550	≤ 1.3	Higher purity mixed bed grade which can be used with intermediate inert spacer in 3-component mixed bed systems (Trilite).
TL Macroporous	710 – 1200	1% < 710	≤ 1.3	
DL Strong	630 – 1200	5% < 630	≤ 1.4	Layered Beds, Lower Layer.
DL Weak	300 – 850	2% < 300	≤ 1.4	Layered Beds, Upper Layer.
S/C	425 – 1200	2% < 425	≤ 1.6	High specific flow rate IWT and special process applications. (treatment of sugar solutions, etc.)
G	500 – 1200	2% < 500	≤ 1.5	Very high specific flowrate softening applications, such as dishwashers.

PUROLITE GRADE	MEAN DIAMETER (μm)	UNIFORMITY COEFFICIENT	REMARKS & APPLICATIONS
PUROFINE®	570 \pm 50	1.1 – 1.2	High efficiency softening and demineralization. Excellent kinetics and rinse properties.
PUROPACK® Gel	650 \pm 50	1.1 – 1.2	High efficiency softening and demineralization. Counter flow packed bed system. Mixed bed cation component employed with PUROFINE anion grade.
PUROPACK® Macroporous and Acrylics	750 \pm 100	1.2 – 1.4	High efficiency softening and demineralization. Counter flow packed bed system.

NOTE: Most resins presented in this catalog can be supplied as Purofine® and Puropack® grades (specific literature available).
WAC grading specs for STD, C, and S grades have been widened to 1400 – 1600 μm on the coarse end.

STRONG BASE ANION EXCHANGERS

PUROLITE	TYPE	IONIC FORM	TOTAL VOLUME CAPACITY (eq/l)	MOISTURE RETENTION (%)	SPECIFIC GRAVITY	MAXIMUM SWELLING (%)	REMARKS & APPLICATIONS
A400	Type I Gel Polystyrenic	Cl ⁻	1.3	48 – 54	1.08	Cl → OH 20	Used primarily in industrial water treatment in warmer climates due to its higher temperature stability. Offers the best silica removal even in co-flow regenerated plants. Also widely used in mixed beds as A400MB, PFA400MB or A400TL.
A444	Type I Gel Polystyrenic	Cl ⁻	1.0	50 – 60	1.07	Cl → OH 20	Alternative high moisture gel anion resin for demineralization and as organic scavenger on high TOC waters.
A600	Type I Gel Polystyrenic	Cl ⁻	1.4	43 – 48	1.09	Cl → OH 20	Premium grade resin with high total capacity and high breaking weight. Very low silica leakage.
A200	Type II Gel Polystyrenic	Cl ⁻	1.3	45 – 51	1.08	Cl → OH 15	High capacity resin offering good silica removal, primarily used in the production of demineralized and dealkalized water.
A300	Type II Gel Polystyrenic	Cl ⁻	1.4	40 – 45	1.10	Cl → OH 10	Premium grade high capacity resin offering good silica removal. Primarily used in the production of demineralized and dealkalized water.
SGA550	Type I Supergel™ Polystyrenic	Cl ⁻	1.4	43 – 48	1.09	Cl → OH 24	Uniform particle size Supergel resin with higher resistance to mechanical and osmotic shock. Recommended for condensate polishing and make-up mixed beds, operating in conjunction with SGC650.
A500Plus	Type I Macroporous Polystyrenic	Cl ⁻	1.15	57 – 63	1.08	Cl → OH 20	Macroporous version of A400 offering greater resistance to OSA. Mainly used in condensate polishing or make-up mixed beds, where its polymer structure helps in resisting organic fouling.
A502P	Type I Macroporous Polystyrenic	Cl ⁻	0.85	66 – 72	1.04	Cl → OH 20	Polystyrenic based organic scavenger resin used to reduce NOM (Natural Organic Matter) and color levels and fouling of downstream anion resins. Also supplied as A502PS for potable water and food applications.
A501P	Type I Macroporous Polystyrenic	Cl ⁻	0.6	70 – 75	1.04	Cl → OH 20	Specifically designed for the adsorption of colloidal particulate (silica, organic matter, metals, clays, etc.).
A510Plus	Type II Macroporous Polystyrenic	Cl ⁻	1.15	48 – 56	1.08	Cl → OH 15	Macroporous version of A200 offering better resistance to OSA and organic fouling due to its polymer structure.
A850	Gel Polyacrylic	Cl ⁻	1.25	57 – 62	1.09	Cl → OH 15	Most widely used resin for the demineralization of high organic bearing waters, offering the best resistance to organic fouling. Higher operating capacity than type I polystyrenic resins, while still offering very good silica leakage in co-flow and counter-flow regeneration.
A860S	Macroporous Polyacrylic	Cl ⁻	0.8	66 – 72	1.08	Cl → OH 20	Acrylic based organic scavenger resin used to reduce NOM (Natural Organic Matter) color levels and fouling of downstream anion resins primarily for sugar decolorization. Better suited to brine-only regeneration than A500P.
A870	Gel Dual Functionality Polyacrylic	Cl ⁻ /FB	1.25	56 – 62	1.08	Cl → OH 10	Bifunctional resin combining weak and strong base sites on the same beads, offering the highest operating capacity and good resistance to organic fouling. Should not be used where the feed water contains a high weak acid anionic loading (CO ₂ + SiO ₂). Recommended weak acid loading less than 20%.

NOTE: Most of the above products are also available in the OH⁻ form.
SBA resins are temperature sensitive. This must be taken into consideration in selecting the correct product.
Please consult your local Purolite office.

WEAK BASE ANION EXCHANGERS

PUROLITE	TYPE	IONIC FORM	TOTAL VOLUME CAPACITY (eq/l)	MOISTURE RETENTION (%)	SPECIFIC GRAVITY	MAXIMUM SWELLING (%)	REMARKS & APPLICATIONS
A100Plus	Macroporous Polystyrenic	Free Base	1.3	53 – 62	1.04	Free Base → Cl 25	Most widely used WBA in IWT due to its good resistance to organic fouling and high operating capacity. Also used in the food industry as A100SPlus.
A103SPlus	Macroporous Polystyrenic	Free Base	1.5	51 – 58	1.04	Free Base → Cl 25	Higher capacity resin more commonly employed for the demineralization and decolorization of glucose syrups and other organic solutions.
A109	Macroporous Polystyrenic	Free Base	1.0	58 – 65	1.05	Free Base → Cl 25	Special WBA resin with primary amine functional groups. Excellent chemical and thermal stability. High resistance to osmotic shocks.
A110	Macroporous Polystyrenic	Free Base	2.0	60 – 66	1.05	Free Base → Cl 50	Special WBA resin with primary amine groups. High capacity
A111	Macroporous Polystyrenic	Free Base	1.7	56 – 62	1.02	Free Base → Cl 40	High moisture, high capacity WBA resin without any quaternary ion exchange groups. Can offer significant advantages for high organic bearing waters and sweeteners solutions.
A120S	Macroporous Polystyrenic	Free Base	1.2	58 – 63	1.04	Free Base → Cl 25	Demineralization and decolorization of sweeteners solutions. Also used for color bodies removal from waste waters.
A133S	Macroporous Polystyrenic	Free Base	1.8	46 – 51	1.04	Free Base → Cl 25	High capacity WBA resin for demineralization and decolorization of glucose solutions.
A830	Macroporous Polyacrylic	Free Base	2.75	50 – 56	1.10	Free Base → Cl 20	Very high exchange capacity polyamine resin developed for special applications such as desulphatation of seawater.
A847	Gel Polyacrylic	Free Base	1.6	56 – 62	1.08	Free Base → Cl 25	First choice acrylic WBA resin for IWT offering higher capacity than polystyrenic resins and good rinse characteristics. Good reversible removal of organics due to more hydrophilic acrylic polymer.

PARTICLE SIZE DISTRIBUTION – ANION EXCHANGERS

PUROLITE GRADE	NOMINAL PARTICLE SIZE (µm)	MAX % BELOW LOWER LIMIT	UNIFORMITY COEFFICIENT	REMARKS & APPLICATIONS
STD	300 – 1200	1% < 300	≤ 1.7	Standard grade.
MB	300 – 1200	1% < 300	≤ 1.7	Mixed bed grade.
TL Gel	425 – 850	1% < 425	≤ 1.35	Higher purity Mixed bed grade which can be used with intermediate inert spacer in 3-component Mixed bed systems (Trilite™).
TL Macroporous	425 – 850	1% < 425	≤ 1.35	
DL Strong	630 – 1200	5% < 630	≤ 1.4	Layered Beds, Lower Layer.
DL Weak	300 – 630	3% < 300	≤ 1.4	Layered Beds, Upper Layer.
S/C	425 – 1200	2% < 425	≤ 1.6	High specific flow rate IWT and special process applications. (treatment of sugar solutions, etc.).

PUROLITE GRADE	MEAN DIAMETER (µm)	UNIFORMITY COEFFICIENT	REMARKS & APPLICATIONS
PUROFINE®	570 ± 50	1.1 – 1.2	High efficiency grade with excellent kinetics and rinse properties. Also employed as mixed bed anion component with PFC and PPC grade cation resins.
PUROPACK® Gel	650 ± 50	1.1 – 1.2	High efficiency grade particularly suited to counter flow regenerated packed bed systems.
PUROPACK® Macroporous and Acrylics	750 ± 100	1.2 – 1.4	High efficiency grade particularly suited to counter flow regenerated packed bed systems.

NOTE: Most resins presented in this catalog can be supplied as Purofine® and Puropack® grades (specific literature available).

SHALLOW SHELL TECHNOLOGY (SST®)

SHALLOW SHELL™	TYPE	IONIC FORM	DRY WEIGHT CAPACITY (eq/kg)	MOISTURE RETENTION (%)	SPECIFIC GRAVITY	REVERSIBLE SWELLING (%)	REMARKS & APPLICATIONS
SSTC60	Strong Acid Cation Gel Polystyrenic	Na ⁺	*3.8	38 – 46	1.20	Ca → Na 8	Shallow Shell Technology resin primarily for high performance softening for reducing operating costs through savings in rinse and regenerant consumption. Use SSTC60H for demineralization.
SSTC65	Strong Acid Cation Gel Polystyrenic	Na ⁺	*3.9	40 – 47	1.20	Ca → Na 8	For use in the CIX-RO™ Process using RO reject brine as a regenerant.
SSTC80	Strong Acid Cation Gel Polystyrenic	Na ⁺	*4.2	42 – 48	1.27	Ca → Na 8	Shallow Shell Technology resin primarily for softening of high TDS water at elevated temperature. Reduces operating cost through savings in rinsing and regenerant consumption.
SSTC104	Weak Acid Cation Gel Acrylic	H ⁺	*6.6	34 – 44	1.17	H → Ca 10	Unique product with high efficiency and less susceptible to heavy metal fouling. Particularly suited to high TDS softening. Reduces operating cost through savings in rinsing and regenerant consumption.
SSTCA63	Strong Base Anion Type II Gel Polystyrenic	Cl ⁻	2.6	37 – 45	1.12	Cl → OH 10	Shallow Shell Technology gel, Type II anion resin for high performance demineralization. Reduces operating cost through savings in rinsing and regenerant consumption
SSTCA64	Strong Base Anion Type I Gel Polystyrenic	Cl ⁻	2.7	43 – 51	1.08	Cl → OH 20	Shallow Shell Technology gel, Type I anion resin for high performance demineralization. Reduces operating cost through savings in rinsing and regenerant consumption

*SST products typically have equal to higher operating capacities than standard grade ion exchange resin based on multiple cycles.

ION SELECTIVE RESINS FOR POTABLE WATER

PUROLITE	TYPE	FUNCTIONAL GROUP	IONIC FORM	TOTAL CAPACITY (eq/l)	MOISTURE RETENTION (%)	REMARKS & APPLICATIONS
A520E	Macroporous Strong Base Anion	Quaternary Ammonium	Cl ⁻	0.9	50 – 56	Selective nitrate removal resin for municipal water, food / drink production and domestic applications.
A530E	Macroporous Strong Base Anion	Quaternary Ammonium	Cl ⁻	0.6	49 – 55	Selective removal of perchlorate, pertechnetate and other oxyanions from water for potable use.
A532E	Gel Strong Base Anion	Quaternary Ammonium	Cl ⁻	0.8	36 – 45	Ultra high selectivity and capacity for perchlorate, pertechnetate and other oxyanions from water for potable use.
S108E	Macroporous Anion	N-methylglucamine	Free Base	0.6	61 – 67 (Cl ⁻)	Selective removal of boron from potable water and water used in agriculture/horticulture irrigation. Also for use in waste water and process water applications.
A600E/9149	Gel Strong Base Anion Type I	Quaternary Ammonium	Cl ⁻	1.6	42 – 45	High capacity resin for removal of nitrate, chromium or uranium in municipal water, food and beverage production and domestic applications.

READY TO USE MIXED BEDS

PUROLITE	IONIC FORM	COMPONENT DESCRIPTION	TYPICAL WORKING CAPACITY (eq/l)	REMARKS & APPLICATIONS
MB400	H ⁺ / OH ⁻	40% Strong Acid Cation Gel 60% Strong Base Anion Gel Type I	0.60	For the production of high-purity, silica-free demineralized water. Principal use in polishing units after small IEX or RO plants. Also used in direct treatment of raw waters. High operating capacity, achieving conductivities less than 0.1 µS/cm in many polishing applications. MB400 is the most popular ready to use industrial grade mixed bed.
MB3720	H ⁺ / OH ⁻	40% Strong Acid Cation Gel 60% Strong Base Anion Gel Type I	0.60	This product is the highest quality industrial grade mixed bed offering enhanced performance between that associated with industrial and UPW grades.
MB46LT	H ⁺ / OH ⁻	50% Strong Acid Cation Gel 50% Strong Base Anion Gel Type I	0.70	High capacity mixed bed, specific for the EDM market (spark erosion machining). Also used for direct treatment of raw waters with high alkalinity.
MB478LT	H ⁺ / OH ⁻	50% Strong Acid Cation Gel 50% Strong Base Anion Gel Type I	0.60	Primarily used for EDM applications.

NOTE: Working capacities to full exhaustion, typical for the first column in a lead-lag layout and dependent on influent water quality and end point. Many other special customized Mixed beds are produced with and without indicators, consult your local Puroilite sales office.

READY TO USE MIXED BEDS WITH INDICATOR

PUROLITE	IONIC FORM	COLOR CHANGE ON EXHAUSTION	COMPONENT DESCRIPTION	TYPICAL WORKING CAPACITY (eq/l)	REMARKS & APPLICATIONS
MB400IND	H ⁺ / OH ⁻	Blue (regenerated) Amber (exhausted) Indicator on anion component	40% Strong Acid Cation Gel 60% Strong Base Anion Gel Type I	0.60	For the production of high-purity, silica-free demineralized water. Principal use in polishing units after small IEX or RO plants. Also used in direct treatment of raw waters. High operating capacity, achieving conductivities less than 0.1 µS/cm in many polishing applications.
MB600AE	H ⁺ / OH ⁻	Greenish Blue (regenerated) Reddish Amber (exhausted) Indicator on anion component	40% Strong Acid Cation Gel 60% Strong Base Anion Gel Type I	0.66	High performance mixed bed with special particle size and bright color change thanks to the unique indicator used. Product successfully used in the production of cartridges for steam irons.
MB500VC	H ⁺ / OH ⁻	Green (regenerated) Blue (exhausted) Indicator on cation component	40% Strong Acid Cation Gel 60% Strong Base Anion Macroporous Type I	0.54	High-contrast color change mixed bed with a UV stable indicator for the production of high quality demineralized water. Can be used in polishing units as well as for the direct treatment of raw waters. Product successfully used in the production of cartridges for steam irons.
MB59VC	H ⁺ / FB	Green (regenerated) Blue (exhausted) Indicator on cation component	60% Strong Acid Cation Gel 40% Weak Base Anion Macroporous	1.1	Very high capacity mixed bed employing a WBA component for the production of partially demineralized water, where removal of CO ₂ and SiO ₂ is not required. Typical run end point of 30 – 50 µS/cm.

NOTE: Working capacities to full exhaustion, typical for the first column in a lead-lag layout and dependent on influent water quality and end point. Many other special customized mixed beds are produced with and without indicators, consult your local Puroilite sales office.

NUCLEAR GRADE PRODUCTS

PUROLITE	TYPE	IONIC FORM	TOTAL CAPACITY (eq/l)	MOISTURE RETENTION (%)	REMARKS & APPLICATIONS
NRW1000	Gel Strong Acid Cation	H ⁺	1.8	51 – 55	Make up demineralization and radwaste systems. This cation resin is not normally used in Li or ⁷ Li forms as a stand-alone resin.
NRW1100	Gel Strong Acid Cation	H ⁺	2.0	46 – 50	Used in separate bed cation vessels for polishing or layered on mixed bed resins for added cation capacity. Also available in ⁷ Li, Li and NH ₄ forms. Higher capacity version of NRW1000.
NRW1160	Gel Strong Acid Cation	H ⁺	2.5	36 – 41	Primary purification cation beds for delithiation and outage clean up. Polishing steam generator blow down and layering on polishing mixed beds. Also available in ⁷ Li form.
NRW160	Macroporous Strong Acid Cation	H ⁺	2.1	43 – 48	Polishing steam generator blow down and layering on polishing mixed beds. Primary purification cation beds for delithiation and outage clean up. Selective for ¹³⁷ Cs. Also available in ⁷ Li form.
NRW4000	Gel Strong Base Anion	OH ⁻	1.0	48 – 54 (Cl ⁻ form)	Separate bed demineralizer anion radwaste systems. Type 1, nuclear grade version of A400, offering good silica removal and removal of weak and strong acids.
NRW6000	Gel Strong Base Anion	OH ⁻	1.1	43 – 48 (Cl ⁻ form)	Primary and secondary separate bed demineralizer anion. Also used as underlay in condensate polishing. Higher total capacity version of NRW4000.
NRW7000	Gel Strong Base Anion	OH ⁻	1.15	42 – 47 (Cl ⁻ form)	Primary and secondary separate bed demineralizer anion. Also used as underlay in condensate polishing.
NRW5010	Macroporous Strong Base Anion	OH ⁻	0.4	70 – 75 (Cl ⁻ form)	Special nuclear grade colloid removal resin for single beds or surface layer on mixed beds to achieve ultra-polishing of primary coolant and radwaste.
NRW5070	Macroporous Strong Base Anion	OH ⁻	1.0	50 – 55 (Cl ⁻ form)	Special nuclear grade colloid removal resin with mechanical durability for single beds or surface layer on mixed beds to achieve ultra-polishing of primary coolant and radwaste.
NRW5050	Macroporous Strong Base Anion	OH ⁻	0.9	53 – 58 (Cl ⁻ form)	Porous structure designed to give greater resistance to surface fouling in a wide range of nuclear applications.

NUCLEAR GRADE MIXED BEDS

PUROLITE	IONIC FORM	COMPONENTS	TOTAL VOLUME CAPACITY (min.) (eq/l)	REMARKS & APPLICATIONS
NRW3240	H ⁺ /OH ⁻ (1)(2)	Gel Cation Gel Anion	1.8 / 1.0	Primary polishing, clean up systems, and radwaste.
NRW3460	H ⁺ /OH ⁻ (1)(2)	Gel Cation Gel Anion	2.0 / 1.1	Higher total capacity version of NRW3240 for primary polishing, clean up systems and radwaste.
NRW3560	H ⁺ /OH ⁻ (1)	Macroporous Cation Gel Anion	2.1 / 1.1	Mixed bed with very high capacity and porous cation for primary purification, steam generator blow down and spent fuel pool demineralization.
NRW3670	H ⁺ /OH ⁻	Gel Cation Gel Anion	2.5 / 1.15	Primary polishing, condensate polishing, spent fuel pool demineralizer, steam generator blow down demineralizer and reactor water cleanup.

(1) Cation component available in ⁷Li form.

(2) Cation component available in Li form.

PURITY OF NUCLEAR GRADE ION EXCHANGERS

CATION RESINS		ANION GEL RESINS	
IONIC FORM	CONVERSION	IONIC FORM	CONVERSION
H ⁺	99.9% min.	OH ⁻	95% min.
Li ⁺ or ⁷ Li ⁺	99.9% min.	CO ₃ ²⁻	5% max.
		*Cl ⁻	0.1% max.
		**SO ₄ ²⁻	0.1% max.
IMPURITIES	mg/kg dry	IMPURITIES	mg/kg dry
Sodium	40 max.	Sodium	20 max.
Iron	50 max.	Iron	50 max.
Heavy Metals as Lead	40 max.	Heavy Metals as Lead	30 max.

*0.2% max. for NRW5070

**0.3% max. for NRW5010

NOTES:

- A. Nuclear grade mixed beds are normally supplied with near stoichiometric equivalents of anion and cation resin sites. Other ratios can be supplied on request.
- B. Purolite Nuclear Grade Products are in operation within the defense industry or nuclear power stations in the Americas, Europe and Asia and carry formal approvals from leading operators of nuclear installations. They meet internationally recognized specifications from the leading suppliers of nuclear power station designs.

POWDERED RESINS FOR CONDENSATE POLISHING

MICROLITE®	TYPE	FUNCTIONAL GROUP	IONIC FORM	TOTAL CAPACITY (eq/kg)	MOISTURE RETENTION (%)	STANDARD PACKAGING DRY WEIGHT (kg)	REMARKS & APPLICATIONS
PrCH	Cation	Sulfonic	H ⁺	4.8	45 – 62	8.8	100% powdered cation hydrogen form.
PrCN	Cation	Sulfonic	NH ₄ ⁺	4.8	40 – 60	10.2	100% powdered cation ammonia form.
PrAOH	Anion	Quaternary Ammonium	OH ⁻	4.0	50 – 60	5.7	100% powdered anion hydroxide form.
FC+	Cellulose Fiber	Inert	Neutral	—	55 – 75	5.5	100% specialty cellulose fiber.

POWDERED RESIN PREMIXES

MICROLITE®	TYPE	FUNCTIONAL GROUP	IONIC FORM	TOTAL CAPACITY (eq/kg)	RATIO CATION : ANION (dry wt.)	RATIO FIBER : RESIN	STANDARD PACKAGING DRY WEIGHT (kg)	REMARKS & APPLICATIONS
CG12H	Cation/ Anion/ Fiber	Sulfonic/ Quaternary Ammonium	H ⁺ / OH ⁻	4.8 / 4.0	4 : 5	1 : 2	5.5	Resin/fiber blend. Also available in ammonium / hydroxide form.
CG19H	Cation/ Anion/ Fiber	Sulfonic/ Quaternary Ammonium	H ⁺ / OH ⁻	4.8 / 4.0	4 : 5	1 : 9	5.5	Resin/fiber blend. Also available in ammonium / hydroxide form.
CG4H	Cation/ Anion/ Fiber	Sulfonic/ Quaternary Ammonium	H ⁺ / OH ⁻	4.8 / 4.0	1 : 1	1 : 1	5.5	Resin/fiber blend. Also available in ammonium / hydroxide form.
MB1/1H	Cation/ Anion	Sulfonic/ Quaternary Ammonium	H ⁺ / OH ⁻	4.8 / 4.0	1 : 1	—	5.5	Resin only. Also available in ammonium / hydroxide form.

NOTE: Other custom made resin/fiber premixed combinations available upon request.

PHARMACEUTICAL PRODUCTS

ACTIVE PHARMACEUTICAL INGREDIENTS

PUROLITE	TYPE USP/EP	REMARKS & APPLICATIONS
C100NaMR	Sodium Polystyrene Sulfonate	Strong acid cation resin with sulfonic acid groups in sodium form; purified, ground and dried for the treatment of hyperkalemia. Can also be used as a drug carrier for controlled release.
C100CaMR	Calcium Polystyrene Sulfonate	Strong acid cation resin with sulfonic acid groups in the calcium form; purified, ground and dried for the treatment of hyperkalemia.
A430MR	Cholestyramine	Special strong base anion resin; purified chloride form, ground and dried for treating high cholesterol.
A830EMR	Polyamine	Weak base anion resin in free base form; purified, ground, dried and used as antacid to control gastric acidity.

NOTE: The manufacturing site is approved by the FDA and is cGMP certified.

EXCIPIENTS AND TABLET DISINTEGRANTS

PUROLITE	TYPE	REMARKS & APPLICATIONS
C100HMR	Polystyrene Sulfonic Acid	Strong acid cation resin with sulfonic acid groups in hydrogen form; purified, ground, dried and used as a drug carrier for controlled release.
C108DR	Polyacrylic Acid	Special weak acid cation resin in hydrogen form; provided as very fine, dry beads and used as a drug carrier for controlled release or as taste masking.
C115HMR	Polacrilix	Weak acid cation resin in hydrogen form; purified, ground, dried and used as a drug carrier or as pH adjuster in the formulation of tablets.
C115KMR	Polacrilin Potassium	Weak acid cation resin in potassium form; purified, ground, dried and used as a tablet disintegrant.

NOTE: Consult your local Purolite office for confirmation of regional, country or state regulatory compliance.

ULTRAPURE WATER PRODUCTS

ULTRACLEAN™	TYPE	IONIC FORM	TOTAL VOLUME CAPACITY (min.) (eq/l)	MOISTURE RETENTION (%)	SPECIFIC GRAVITY MOIST BEADS	REMARKS & APPLICATIONS
UCW9126	Gel Strong Acid Cation	H ⁺	1.9	49 – 54	1.21	Ultrapure water cation resin with very low TOC release operating in single beds or mixed beds with anion component UCW5072.
UCW5072	Gel Strong Base Anion	OH ⁻	1.0	55 – 60 (Cl ⁻ form)	1.07	Ultrapure water anion resin with very low TOC release operating in single beds or mixed beds with cation component UCW9126.
UCW1080	Macroporous Complex Amine	Free Base	0.6 (FB form)	61 – 67 (Cl ⁻ form)	1.10	Semiconductor Industry – Ultrapure Water for selective boron removal.

ULTRAPURE WATER MIXED BEDS

ULTRACLEAN™	IONIC FORM	TOTAL VOLUME CAPACITY (min.) (eq/l)	MOISTURE RETENTION (%)	REMARKS & APPLICATIONS
UCW9964	H ⁺ / OH ⁻	Cation: 1.9 Anion: 1.0	Cation: 49 – 54% Anion: 55 – 60% (Cl ⁻ form)	Highest purity <i>separable</i> MB for final polishing and point of use treatment for UPW systems. Highest resistivity and very low TOC release.
UCW9966	H ⁺ / OH ⁻	Cation: 1.9 Anion: 1.0	Cation: 49 – 54% Anion: 55 – 60% (Cl ⁻ form)	Highest purity <i>non separable</i> MB for final polishing and point of use treatment for UPW systems. Highest resistivity and very low TOC release.
UCW3600	H ⁺ / OH ⁻	Cation: 1.9 Anion: 1.1	Cation: 49 – 54% Anion: 55 – 62%	High operating capacity <i>separable</i> mixed bed for UPW systems.
UCW3700	H ⁺ / OH ⁻	Cation: 1.9 Anion: 1.0	Cation: 49 – 54% Anion: 60 – 70%	<i>Separable</i> mixed bed for UPW systems.
UCW3900	H ⁺ / OH ⁻	Cation: 2.0 Anion: 1.0	Cation: 46 – 50% Anion: 60 – 70%	<i>Separable</i> mixed bed with higher capacity cation for UPW systems.

NOTE: The ratio of Cation to Anion is chemically equivalent at 1:1.

HYDROMETALLURGICAL RESINS

PUROLITE	TYPE	FUNCTIONAL GROUP	IONIC FORM*	CAPACITY	MOISTURE RETENTION (%)	REMARKS & APPLICATIONS
Purogold™ A193	Macroporous Mixed Base Anion	Mixed Tertiary & Quaternary Amines	Cl ⁻	3.8 eq/kg	46 – 56	For effective recovery of aurocyanide complexes obtained from the alkaline cyanide processing of gold ores. Suitable for RIP process. 800 – 1300 µm grading.
S992	Macroporous Weak Base / Chelating	Mixed Amines	FB	4.4 eq/kg	47 – 55	For effective recovery of aurocyanide complexes obtained from the alkaline cyanide processing of gold ores. Suitable for RIP process. 800 – 1300 µm grading.
A500CPlus	Macroporous Strong Base Anion	Quaternary Ammonium	Cl ⁻	1.15 eq/l	57 – 63	For effective recovery of gold complexes obtained from the thiosulfate processing of gold ores.
Purofine® PFA600/4740	Gel Strong Base Anion	Quaternary Ammonium	Cl ⁻	1.6 eq/l	40 – 45	For the extraction of uranyl sulfate and carbonate complexes from the leachates originated from ISL, batch or heap leaching processes.
A660/4759	Gel Strong Base Anion	Quaternary Ammonium	Cl ⁻	1.3 eq/l	44 – 52	For the extraction of uranyl sulfate complexes from the sulfuric leachates. Suitable for RIP process. 800 – 1300 µm grading.
PFA460/4783	Gel Strong Base Anion	Quaternary Ammonium	Cl ⁻	1.3 eq/l	47 – 54	For the extraction of uranyl sulfate complexes from the clean sulfuric solutions.
A500U/2788	Macroporous Strong Base Anion	Quaternary Ammonium	Cl ⁻	1.15 eq/l	53 – 58	For uranium recovery. Suitable for RIP process. 800 – 1300 µm grading.
A500U/4994	Macroporous Strong Base Anion	Quaternary Ammonium	Cl ⁻	1.15 eq/l	53 – 58	For uranium recovery. Suitable for RIP process. 710 – 1300 µm grading.
A560/4790	Macroporous Strong Base Anion	Quaternary Ammonium	Cl ⁻	1.15 eq/l	49 – 56	For uranium recovery from the sulfuric solutions. Suitable for RIP process. 800 – 1300 µm grading.
A100Mo	Macroporous Mixed Base Anion	Mixed Tertiary & Quaternary Amines	Cl ⁻	1.2 eq/l	48 – 56	For molybdenum recovery from acid solutions.
S930Plus	Macroporous Chelating	Iminodiacetic	Na ⁺	50 g/l Cu	52 – 60	For base metals recovery from weak acid solutions.
S930/4888	Macroporous Chelating	Iminodiacetic	Na ⁺	50 g/l Cu	52 – 60	For base metals recovery from weak acid solutions. Suitable for RIP process. 800 – 1300 µm grading.
S950	Macroporous Chelating	Aminophosphonic	Na ⁺	26 g/l Ca	60 – 68	For recovery of uranium from phosphoric acid.
S960	Macroporous Chelating	Bis-picolyamine	SO ₄ ²⁻	25 g/l Ni	50 – 60	For sorption of base metals from more concentrated sulfuric solutions and separation of base metals.
A170/4675	Macroporous Weak Base Anion	Complex Amine	FB	1.3 eq/l	42 – 47 (Cl)	For selective sorption of rhenium from acid streams. Suitable for RIP process. 600 – 1200 µm grading.
A172/4635	Gel Weak Base Anion	Complex Amine	FB	1.2 eq/l	25 – 45 (Cl)	For separation of rhenium from molybdate.
S984	Macroporous Weak Base / Chelating	Mixed primary, secondary and tertiary amines	FB	2.7 eq/l	50 – 56	For tungsten impurity removal from molybdate solutions.
S957	Macroporous Strong Acid Cation / Chelating	Mixed Sulfonic and Phosphonic	Na ⁺	18 g/l Fe	55 – 70	For removal of ferric iron from copper, nickel or cobalt electrolytes as well as molybdenum sorption from strong acid solutions.

*Some products can be supplied in customized ionic form.

ADSORBENTS

PUROSORB™	POLYMER MATRIX	PORE DIAMETER (Å)*	PORE VOLUME (ml/g)*	SURFACE AREA (m ² /dry g)**	MOISTURE RETENTION (%)	REMARKS & APPLICATIONS
PAD350	Polystyrenic	350	0.7	700	58 – 64	Specifically designed for selective adsorption of molecules with a relatively low molecular weight, these adsorbents offer consistent enhanced performance over carbon and other adsorbents. The variations in surface area and pore volume give each product unique advantages in applications such as the removal of hydrocarbons and chlorinated solvents from ground waters and industrial waste streams.
PAD400	Polystyrenic	400	0.7	720	55 – 61	
PAD428	Polystyrenic	450	0.7	500	50 – 56	Brominated, styrenic adsorbent with high hydrophobicity. Removal of hydrophobic organic compounds from aqueous solutions and polar solvents.
PAD500	Polystyrenic	620	1.0	700	63 – 69	This unique product, characterized by medium size pores and a narrow particle size distribution, offers definitive advantages over standard grade adsorbents. Its uniform beads ensure lower pressure drop in service duty and enhanced elution profiles of the adsorbed species on desorption. Typical applications include the extraction and separation of antocyanins and polyphenols from grape must and other fruit juices.
PAD550	Polystyrenic	600	1.1	950	58 – 64	These three products differ in offering a range of surface areas, pore volumes and pore sizes specifically tailored for applications where medium to large molecular weight species are targeted within the application. Typical applications include the isolation and purification of Active Pharmaceutical Ingredients.
PAD600	Polystyrenic	630	1.1	830	58 – 64	
PAD700	Polystyrenic	700	1.2	550	56 – 62	
PAD900	Polystyrenic	1000	1.5	800	67 – 73	These products offer the largest pore sizes. They are designed to capture the largest molecular weight species in a wide range of applications such as the extraction of antibiotics from fermentation broths or bitterness removal from citrus juices.
PAD910	Polystyrenic	1100	1.6	540	62 – 68	
PAD300	Polyacrylic	280	0.5	90	59 – 65	The acrylic matrix gives these products different chemical properties. Their less hydrophobic structure enables them to outperform polystyrene based synthetic adsorbents in non-polar media but does not mean they cannot be used in aqueous solutions. They have differing surface areas, pore volumes and pore sizes to cover a wide range of applications. The changes in these parameters alter the selectivity of each product.
PAD610	Polyacrylic	700	1.1	490	60 – 66	
PAD950	Polyacrylic	960	1.3	535	65 – 71	

HYPER-SOL-MACRONET®	TYPE	VOLUME CAPACITY (eq/l)	PORE DIAMETER (Å)*	SURFACE AREA (m ² /dry g)**	MOISTURE RETENTION (%)	REMARKS & APPLICATIONS
MN100	Weak Base Anion	0.1 – 0.3 (FB form)	900	900	57 – 61 (Cl ⁻ form)	For the efficient sorption of high molecular weight color bodies such as those found in sugar solutions (e.g. HMF) and many complex organics such as dyes or certain pesticides.
MN102	Weak Base Anion	0.1 – 0.3 (FB form)	750	700	50 – 60 (FB form)	For the efficient sorption of high molecular weight organic molecules such as limonin and naringin from fruit juices and for cane syrup decolorization. Regenerated more easily than other materials due to its weak base functionality.
MN200	Inert	—	900	900	57 – 61	For the efficient sorption of high molecular weight organic molecules with lipophilic properties (dyestuffs, pesticides) in industrial process waste water treatment.
MN202	Inert	—	750	825	50 – 60	For the efficient sorption of high molecular weight organic molecules with lipophilic properties as are typically found in waste waters from industrial processes. These include complex organics such as dyestuffs or pesticides.
MN270	Inert	—	25	1200	35 – 50	Sorption / Separation of hydrophobic organic species - Microporous matrix. Pore Volume 0.2 – 0.4 ml/g.
MN500	Strong Acid Cation	0.8 – 1.0 (Na ⁺ form)	900	900	52 – 57 (H ⁺ form)	For taste, odor and 2AAP removal from syrups. Sorption / Separation of hydrophobic organic species.
MN502	Strong Acid Cation	0.8 – 1.0 (Na ⁺ form)	750	700	52 – 57 (H ⁺ form)	For taste, odor and 2AAP removal from syrups. Sorption / Separation of hydrophobic organic species.

*Hg intrusion method

**One point BET

CHROMATOGRAPHIC RESINS

PUROLITE	TYPE	TOTAL VOLUME CAPACITY (Na form) (eq/l)	MEAN SIZE TYPICAL (µm)	MOISTURE RETENTION (Na form) (%)	MOISTURE RETENTION (H form) (%)	REMARKS & APPLICATIONS
PCR145	Macroporous Strong Acid Cation	1.5	270 – 310	55 – 60	60 – 66	Cation chromatographic separation resins can be supplied in Ca ²⁺ , Na ⁺ , K ⁺ or H ⁺ forms. Ca ²⁺ form separations: Glucose-Fructose, Maltose Na ⁺ form separations: Beet Molasses, Dextrose enrichment, Erythritol K ⁺ form separations: Beet Molasses, Fructo-oligosaccharides, Soluble fiber H ⁺ form separations: Acid-Sugar (cellulose hydrolyzate)
PCR450	Gel Strong Acid Cation	1.35	360 – 400	60 – 65	65 – 71	
PCR631	Gel Strong Acid Cation	1.6	210 – 240	50 – 56	55 – 62	
PCR632	Gel Strong Acid Cation	1.7	210 – 250	52 – 55	55 – 61	
PCR633	Gel Strong Acid Cation	1.6	210 – 240	50 – 56	55 – 62	
PCR642	Gel Strong Acid Cation	1.6	295 – 335	52 – 56	57 – 61	
PCR651	Gel Strong Acid Cation	1.6	330 – 360	52 – 56	57 – 61	
PCR652	Gel Strong Acid Cation	1.6	350 – 370	52 – 56	57 – 61	
PCR732	Gel Strong Acid Cation	1.8	210 – 250	50 – 52	53 – 57	
PCR833	Gel Strong Acid Cation	2.0	225 – 275	44 – 48	51 – 55	
PCR855	Gel Strong Acid Cation	2.0	210 – 230	42 – 46	—	

PUROLITE	TYPE	TOTAL VOLUME CAPACITY (Cl form) (eq/l)	MEAN SIZE TYPICAL (µm)	MOISTURE RETENTION (Cl form) (%)	REMARKS & APPLICATIONS
PCA433	Gel Strong Base Anion	1.3	230 – 280	48 – 57	Anion chromatographic separation resin can be supplied in Cl ⁻ , SO ₄ ²⁻ , OH ⁻ forms.
PCA433/5180	Gel Strong Base Anion	1.4	230 – 280	40 – 45	Anion chromatographic separation resin. Acid retardation. Better oxidation stability.
WCA100	Gel Strong Base Anion	0.9 amphoteric	240 – 280	52 – 62	Amphoteric resin containing balance of weakly acidic and strongly basic groups. Chromatographic applications like salt removal from caustic and sulfate removal from brine.

SUGAR AND SWEETENER PRODUCT CHART

PUROLITE PRODUCTS FOR DEMINERALIZATION, DECOLORIZATION, TASTE AND ODOR

CORN/WHEAT SWEETENERS	CANE SUGAR	BEET SUGAR	POLYOLS	AMINO ACIDS	CITRIC ACID	LACTIC ACID	ETHYL LACTATE	VITAMIN E
C150S C155S C160S A100SPlus A103SPlus A111S A133S A510SPlus A513S A870 MN100 MN150 MN152 MN500 MN502	C115E A420S A440S A860S A500SPlus A503S A502PS MN102 PrAOH PrA420CL	C104EPlus C106E C100S C115E C150S C160S A500S A503S A502PS A870	C104EPlus C150S A103SPlus A500SPlus A510SPlus	C104FL C100S C100S/1633 SSTC72 PPC100S/5567 PPC100X10 C141/9363 C160S A830	C160S C100S A146S A830FL A847S	C100S SSTC80 C160S A140S A149S	A146S	A503MBOH/4363 CP916

NOTE: MB, PF, and PP grades available. Other gradings available upon request.
PCR resins are listed under "Chromatographic Separation Resins."
Inert resins are listed under "Special Products."

CATALYST RESINS

PUROLITE	TYPE	FUNCTIONAL GROUP	IONIC FORM	TOTAL CAPACITY (eq/dry) (kg)	MOISTURE RETENTION (%)	REMARKS & APPLICATIONS
CT122	Gel	Sulfonic	H ⁺	5.0	78 – 82	Recommended for esterification reactions and for the synthesis of Bisphenol A.
CT124	Gel	Sulfonic	H ⁺	5.0	65 – 70	Recommended for esterification reactions and for the synthesis of Bisphenol A.
CT151	Macroporous	Sulfonic	H ⁺	5.1	54 – 59	Specifically designed for catalysis of organic reactions, in particular for the purification of phenol.
CT169	Macroporous	Sulfonic	H ⁺	4.7	51 – 57	MTBE, ETBE, TAME, TAE, Esterification, C4 dimerization.
CT175	Macroporous	Sulfonic	H ⁺	4.9	53 – 58	Excellent accessibility of active sites. Studied and developed for the synthesis of MTBE, ETBE and TAME.
CT251	Macroporous	Sulfonic	H ⁺	5.2	54 – 59	Primarily used for phenol purification, esterification, C4 dimerization.
CT252	Macroporous	Sulfonic	H ⁺	5.4	54 – 58	Primarily used for esterification, aromatic alkylation, phenol purification, and C4 dimerization. Highest dry weight capacity.
CT269	Macroporous	Sulfonic	H ⁺	5.2	51 – 57	High activity with very good mechanical resistance. Ideal for esterification reactions and phenol alkylation.
CT275	Macroporous	Sulfonic	H ⁺	5.2	54 – 59	High activity catalyst with excellent accessibility of active sites. Recommended for the synthesis of MTBE, ETBE, TAME and TAE.
CT276	Macroporous	Sulfonic	H ⁺	5.3	51 – 59	For MTBE, ETBE, TAME, and C4 dimerization. High dry weight capacity.
CT482	Macroporous	Sulfonic	H ⁺	2.7	48 – 58	High temperature catalysis. Hydration of olefins in MEK process, hydrogenation of MIBK.

NOTE: Most products are also available in DR (Dry) grade.

CHELATING RESINS

PUROLITE	FUNCTIONAL GROUP	IONIC FORM	CAPACITY	MOISTURE RETENTION (%)	REMARKS & APPLICATIONS
S108	N-methylglucamine	Free Base	0.6 eq/l	61 – 67 (Cl ⁻)	Selective removal of boron from potable water and water used in agriculture/horticulture irrigation. Also for use in waste water and process water applications.
S910	Amidoxime	Free Base	40 g/l Cu	52 – 60	Selective removal of heavy metals from wastewater and hydrometallurgical processes.
S914	Thiourea	–	1.0 eq/l	50 – 56	High selectivity and high capacity for mercury removal from brine and effluent from chlor-alkali process. Selective recovery of precious metals (gold, platinum, palladium, etc.) from acidic solutions. Stable over entire pH range. Non-regenerable use.
S920	Isothiouonium	H ⁺	200 g/l Hg	48 – 54	High selectivity and high capacity for mercury removal in wastewaters. Widely used for final polishing to meet mercury discharge limits. Selective recovery of precious metals (gold, platinum, palladium, etc) from acidic solutions. Non-regenerable use.
S924	Thiol	H ⁺	200 g/l Hg	45 – 51	Regenerable resin designed for the selective removal of mercury from wastewaters and special applications (i.e. chlor-alkali plants).
S930Plus	Iminodiacetic	Na ⁺	50 g/l Cu	52 – 60	Improved version of S930 widely used as a general metals polisher from a wide variety of wastes. Purification of brine in chlor-alkali plants offering highly efficient removal of strontium. Extremely high copper capacity. Countless applications in non-ferrous hydro-metallurgy.
S940	Amino-phosphonic	Na ⁺	20 g/l Ca	55 – 65	Highly selective for low atomic weight metals. Also used in purification of brine where lower strontium levels are encountered in chlor-alkali plants.
S950	Amino-phosphonic	Na ⁺	26 g/l Ca	60 – 68	Selective removal of heavy metals from wastewaters. Purification of selected plating baths in the surface finishing industry. (i.e. bright nickel bath rejuvenation).
S957	Phosphonic/Sulfonic	H ⁺	18 g/l Fe	55 – 70	Resin for removing trace iron from drinking water. Applications in the purification of galvanic baths including removal of iron in low pH applications. Purification of selected plating baths in the surface finishing industry.
S960	Bis-picolylamine	SO ₄ ²⁻	25 g/l Ni	50 – 60	For sorption of base metals from more concentrated sulfuric solutions and separation of base metals.
S985	Polyamine	Free Base	2.3 eq/l	52 – 57	Removal of heavy metals present in complexed form (e.g. EDTA complexes) from wastewaters.

ENZYME CARRIERS

PUROLITE	TYPE	FUNCTIONAL GROUP	IMMOBILIZATION	NOMINAL PORE DIAMETER POROSITY (ø, Å)	REMARKS & APPLICATIONS
ECR8205	Epoxy acrylate	Epoxy	Covalent	450 – 600	Aqueous/Non aqueous media
ECR8214	Epoxy acrylate	Epoxy	Covalent	1200 – 1800	Aqueous/Non aqueous media
ECR4204	Epoxy acrylic/styrene	Epoxy	Covalent	275 – 450	Aqueous/Non aqueous media
ECR8310	Amino C2 acrylate	Amino Group (short spacer)	Covalent	850 – 1200	Aqueous/Non aqueous media
ECR8319	Amino C2 acrylate	Amino Group (short spacer)	Covalent	1600 – 2000	Aqueous/Non aqueous media
ECR8405	Amino C6 acrylate	Amino Group (long spacer)	Covalent	450 – 850	Aqueous/Non aqueous media
ECR8417	Amino C6 acrylate	Amino Group (long spacer)	Covalent	1600 – 2200	Aqueous/Non aqueous media
ECR8804	Octadecyl acrylate	Octadecyl	Adsorption	350 – 450	Non aqueous media
ECR8806	Octadecyl acrylate	Octadecyl	Adsorption	500 – 700	Non aqueous media
ECR1030	DVB/acrylate	None	Adsorption	200 – 300	Non aqueous media
ECR1090	Macroporous styrene	None	Adsorption	900 – 1100	Non aqueous media
ECR1091	Macroporous styrene	None	Adsorption	950 – 1200	Non aqueous media

NOTE: Samples are typically provided in standard or customized “kits” (50g or 500g each product). Available as 150 – 300 micron (F grade) or 300 – 700 micron (M grade). Resins are supplied wet. All resins are food grade.

ANALYTICAL AND PREPARATIVE BIOCHROMATOGRAPHY

SIZE RANGE	APPLICATIONS
3, 4, 5 µm	Analytical (HPLC)
10, 15 µm	Preparative (HPLC)
15, 35, 50, 75 µm	Process/polishing of proteins, small molecules and synthetic biomolecules, recombinant proteins, front-end capture, desalting, purification, solid phase extraction
> 75 µm	Large scale purification, desalting, polishing of proteins and synthetic biomolecules

CHROMALITE® PRODUCT CHART

TYPE	PARTICLE SIZE							
	<5 µm	10 µm	15 µm	35 µm	50 µm	75 µm	125 µm	>200
ION EXCHANGE CATION					CGC50X2 CGC50X4 CGC50X8		CGC100X2 CGC100X4 CGC100X8	CGC200X2 CGC200X4 CGC200X8
ION EXCHANGE ANION			15SBG		CGA50X2 CGA50X4 CGA50X8 50SBM		CGA100X2 CGA100X4 CGC100X8	CGA200X2 CGA200X4 CGA200X8
HYDROPHOBIC INTERACTION	4AD1 5AD1 3AD2 5AD2 3MN 5MN	10 AD1 10AD2 10MN	PCG1200F15 15 AD1 15AD2 15MN	PCG1200F PCG900F PCG600F		PCG1200M PCG900M PCG600M 70MN	PCG1200C PCG900C PCG600C	

NOTE: CGC/CGA/SBG: Non-porous (gel-type) polystyrene, with low DVB crosslinking (2 - 8%). Used for IEX purification of small organic molecules. AD/PCG/SBM: Macroporous (MP) type, with high DVB crosslinking. The porosity is tailored during polymerization to create small, medium or very large pore beads.

MN: Hypercrosslinked polystyrene adsorbents, featuring extremely high surface area and microporosity that ensures efficient adsorption of many organic small molecules. Ideal for solid-phase extraction (SPE).

SPECIAL PRODUCTS

PUROLITE	TYPE	SHIPPING WEIGHT (g/l)	PARTICLE SIZE OR DIMENSION (mm)	REMARKS & APPLICATIONS
AC20	Granular Activated Carbon	470 – 490	0.4 – 1.4	For removal of free chlorine & organic contaminants from potable water.
AC20G	Granular Activated Carbon	470 – 490	0.6 – 2.4	Coarse version of AC20 for the removal of free chlorine & organic contaminants from potable water.
IP1	Polyethylene	540 – 560	2.5 – 4.0	Floating inert polymer for Puropack® systems with downflow service.
IP3	Polyacrylate	680 – 710	Mean 0.67 – 0.73	Inert spacer for use in gel Trilite™ 3-component mixed beds.
IP4	Polypropylene	520 – 550	1.1 – 1.5	Floating inert polymer in the form of small cylinders for Puropack® systems with upflow service.
IP7	Polyacrylate	680 – 710	Mean 0.67 – 0.73	Blue colored inert spacer for use in macroporous high performance Trilite™ 3-component mixed beds.
IP9	HDPVC	800 – 900	3 – 5	Heavy inert polymer for use as an underbed - cylindrical form.
MZ10Plus	Manganese Zeolite	1300 – 1400	0.25 – 1.0	Activated greensand for removal of iron, manganese and hydrogen sulfide from ground water. Potable water treatment and pre-treatment for ion exchange resins plants.
CPM 7040	Cation Permselective Membrane	380 – 420 g/m ²	1000 x 3000	Heterogeneous membrane, permeable to cations; for electrodialysis and anaphoresis.
APM 7540	Anion Permselective Membrane	380 – 420 g/m ²	1000 x 3000	Heterogeneous membrane, permeable to anions; for electrodialysis and cataphoresis.

SPECIAL ION EXCHANGERS

PUROLITE	TYPE	FUNCTIONAL GROUP	IONIC FORM	TOTAL CAPACITY (eq/l)	MOISTURE RETENTION (%)	REMARKS & APPLICATIONS
MPR1000	Macroporous Strong Base Anion	Quaternary Ammonium	Cl ⁻	0.6	68 – 74	Proprietary resin blend for reducing membrane fouling by removing colloidal materials and dissolved organic matter from RO feedwater. Significant SDI reduction.
C100EAg	Gel Strong Acid Cation	Sulfonic	Na ⁺	1.9	46 – 50	Softening resin with bacteriostatic properties containing a small proportion of special silver loaded resin.
C150Ag	Macroporous Strong Acid Cation	Sulfonic	Na ⁺ /Ag ⁺	1.8	48 – 53	Silver loaded resin used as bacteriostatic additive for softening resins.
A605	Gel Iodinated Strong Base Anion	Quaternary Ammonium	Cl ⁻ /I ⁻	—	—	Iodine release anion resin for disinfecting potable water at point of use. For remote locations and treatment of contaminated water.
HM6 / HM10	Hydroponic Resin	Sulfonic / Tertiary Amine	H ⁺ /FB/ Nutrients	—	—	Two products for nutrient release for healthy growth and development of ornamental plants in hydroculture.
NRW100QR	Gel Strong Acid Cation	Sulfonic	H ⁺	1.9 (Na)	53 – 57 (H)	Cation resin with indicator. On exhaustion, color changes from neutral (regenerated form) to red (exhausted form). Widely used for after-cation conductivity measurement for monitoring condensate quality on power stations.
C100EVCH	Gel Strong Acid Cation	Sulfonic	H ⁺	1.9 (Na)	53 – 57 (H)	Cation resin with indicator. On exhaustion color changes from green (regenerated form) to blue (exhausted form).
A200MBOH IND	Gel Strong Base Anion Type II	Quaternary Ammonium	OH ⁻	1.3 (Cl)	45 – 51 (Cl)	High capacity Type 2 anion resin with indicator. Upon exhaustion color changes from blue (regenerated form) to neutral form (exhausted form). Used in HCl vent scrubbers and demineralization tank vents to stop CO ₂ ingress.
A400MBOH IND	Gel Strong Base Anion Type I	Quaternary Ammonium	OH ⁻	1.3 (Cl)	48 – 54 (Cl)	Type 1 version of A200MBOHIND. Also available as macroporous product as A500MBOHIND. Anion resin with indicator. Upon exhaustion color changes from blue (regenerated form) to neutral form (exhausted form).
CT275Ag	Macroporous Strong Acid Cation	Sulfonic	H ⁺ /Ag ⁺	5.2	51 – 59	Silver loaded resin for the removal of alkyl iodides (C1 to C12 or higher) in organic solvents such as acetic acid, under low temperature conditions (<50°C) and/or high flow rate.
PD206	Gel Strong Acid Cation	Sulfonic	H ⁺	4.9 eq/kg	—	Premium dry resin with optimized residual moisture for biodiesel purification for removal of glycerine, water and residual cations. Helps to produce biodiesel to international recognized standards.
OL100	Gel Strong Acid Cation	Sulfonic	Na ⁺	1.9	44 – 48	Specially activated resin for oil separation from water by coalescence. Primary application in deoiling of condensates.

ABBREVIATIONS

CIX-RO	Cyclic Ion Exchange – Reverse Osmosis
EDM	Electrical Discharge Machining
EDTA	Ethylenediaminetetraacetic Acid
EP	European Pharmacopoeia
HDPVC	High Density PolyVinylChloride
IEX	Ion Exchange
IWT	Industrial Water Treatment
MB	Mixed Bed
MP	Macroporous
NOM	Natural Organic Matter
OSA	Osmotic Shock and Attrition
PFA	Purofine [®] Anion
PPA	Puopack [®] Anion
PFC	Purofine [®] Cation
PPC	Puopack [®] Cation
RIP	Resin in Pulp
RO	Reverse Osmosis
SAC	Strong Acid Cation
SBA	Strong Base Anion
SDI	Silt Density Index
SST	Shallow Shell Technology
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
UPW	Ultrapure Water
USP	US Pharmacopoeia
UV	Ultra-violet
WAC	Weak Acid Cation
WBA	Weak Base Anion

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