Product Guide

Purolite®
An Ecolab Company

Inside you will find a broad overview of the characteristics and applications of Purolite products. This guide is divided by product type, industry, application or brand.

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About Purolite

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

Responding to our customers' needs, Purolite has the widest variety of products and the industry's largest technical sales force. Globally, we have strategically located research and development centers and application laboratories. Our ISO 9001 certified manufacturing facilities in the USA, United Kingdom, Romania and China combined with more than 40 sales offices in 30 countries ensure complete worldwide coverage.

Purolite has been part of Ecolab since 2021. A trusted partner at nearly three million commercial customer locations, Ecolab (ECL) is the global leader in water, hygiene and infection prevention solutions and services. Ecolab delivers comprehensive solutions, data-driven insights and personalized service to advance food safety, maintain clean and safe environments, optimize water and energy use, and improve operational efficiencies and sustainability for customers in the food, healthcare, hospitality and industrial markets in more than 170 countries around the world.

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 team in the industry.

INNOVATIVE SOLUTIONS

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

Purolite Product Guide

THIS IS AN INTERACTIVE DOCUMENT

Clicking on any word/product name in blue will take you to that respective area on the Purolite website. Clicking on the section in the table of contents will take you to that page.

Section Name

Product	Type	Ionic Form	Total Volume Capacity (min.) (eq/l)	Moisture Retention (%)	Specific Gravity	Reversible Swelling (max. %)	Remarks & Applications

Contents

Strong Acid Cation (SAC) Exchangers

Strong Acid Cation resins are used for domestic and industrial softening (in Na^+ form) and demineralization (in H^+ form). All of them are based on a polystyrenic matrix which bears sulfonic functional groups.

Gel type resins have a homogeneous structure, with only micropores inside the beads: they have fast kinetics and a high operating capacity and they are the products of choice for most conventional applications.

Macroporous resins have pore structures significantly more robust than gel resins that allow macroporous resins to be used in more challenging applications and in harsher operating conditions. Macroporous resins are in fact more osmotically and oxidatively stable and less prone to mechanical breakdown.

Like most Purolite products, our strong acid cation ion exchange resins are available in several ionic forms and in many size gradings including uniform particle size. They are available with many types of regulatory approvals such as NSF Certified, Kosher and Halal.

Product	Type	Ionic Form	Total Volume Capacity (min.) (eq/l)	Moisture Retention (%)	Specific Gravity	Reversible Swelling (max. %)	Remarks & Applications
C100E	Gel Polystyrenic	Na^+	1.9	46–50	1.27	$Ca^{2+} \rightarrow Na^+$ 8 $Na^+ \rightarrow H^+$ 10	Softening and demineralization resin, widely used in industrial and domestic applications. Potable water grade.
C100	Gel Polystyrenic	Na^+	2.0	44–48	1.29	$Na^+ \rightarrow H^+$ 9	Primary softening and demineralization resin for industrial and potable water applications.
C100X10	Gel Polystyrenic	Na^+	2.2	40–43	1.30	$Na^+ \rightarrow H^+$ 8	High 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.
SUPERGEL™ SGC650	Gel Polystyrenic	Na^+	2.2	40–43	1.30	$Na^+ \rightarrow H^+$ 10	Uniform particle size used for condensate polishing and make-up MB's. Offers excellent physical strength and high resistance to OSA. Operating in conjunction with SGA550.
C150	Macroporous Polystyrenic	Na^+	1.8	48–53	1.25	$Na^+ \rightarrow H^+$ 7	Macroporous structure offers high resistance to OSA. Employed in challenging operating conditions such as condensate treatment and process applications.
C160	Macroporous Polystyrenic	Na^+	2.3	35–40	1.30	$Na^+ \rightarrow H^+$ 4	Higher cross linked macroporous resin with higher exchange capacity offering excellent resistance to oxidation. For process applications, and in the treatment of industrial waste streams.

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

Weak Acid Cation (WAC) Exchangers

Weak Acid Cation (WAC) ion exchange resins are primarily used for water dealkalization and softening, but also can be applied for the removal of heavy metals in potable, process and wastewater treatment. They are also used in drinking water cartridges, pharmaceutical and biotech applications.

All weak acid cation resin products have a polyacrylic backbone. The functional carboxylic groups give high chemical efficiency, with very low regenerant demand.

They are typically supplied in H^+ form, but they are also available with partial conversion in $Na^+/Mg^{2+}/Ca^{2+}$ form.

Product	Type	Ionic Form	Total Volume Capacity (min.) (eq/l)	Moisture Retention (%)	Specific Gravity	Reversible Swelling (max. %)	Remarks & Applications
C104Plus	Porous Polyacrylic	H^+	4.7	45–55	1.19	$H^+ \rightarrow Ca^{2+}$ 20 $H^+ \rightarrow Na^+$ 60	High capacity regenerable dealkalization resin with good exchange kinetics. Also available in food grade as C104EPlus.
C106	Macroporous Polyacrylic	H^+	2.7	54–64	1.14	$H^+ \rightarrow Ca^{2+}$ 20 $H^+ \rightarrow Na^+$ 100	Higher resistance to OSA. For process applications, such as antibiotics extraction from fermentation broths and treatment of ammoniacal condensates.
C107E	Porous Polyacrylic	H^+	3.6	53–58	1.17	$H^+ \rightarrow Ca^{2+}$ 25 $H^+ \rightarrow Na^+$ 90	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	$H^+ \rightarrow Ca^{2+}$ 40 $H^+ \rightarrow Na^+$ 100	Very weakly acidic for process applications especially in the pharmaceutical industry. Recommended for the CARIX™ (Veolia Water Technologies) process.

NOTE: Resins with partial conversion in $Na^+/Mg^{2+}/Ca^{2+}$ form are available for cartridge applications.

Purolite's weak acid cation exchangers do a great job of partially demineralizing water while removing harmful metals and other cationic impurities.

Particle Size Distribution – Cation Exchangers

Product 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	710–1200	1% < 710	≤ 1.3	Mixed bed grade which can be used with intermediate inert spacer in 3-component mixed bed systems (Trilite™).
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	425–1200	2% < 425	≤ 1.6	Special food grade applications (treatment of sugar solutions, etc.).
C	425–1200	2% < 425	≤ 1.6	High specific flow rate industrial water treatment.
G	500–1200	2% < 500	≤ 1.5	Very high specific flowrate softening applications, such as dishwashers.

Product Grade	Mean Diameter (µm)	Uniformity Coefficient*	Remarks & Applications
PUROFINE®	570 ± 50	1.1–1.2	High efficiency softening and demineralization. Excellent kinetics and rinse properties.
PUROPACK® GEL	650 ± 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 ± 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).
Mean diameters can vary for different ionic forms. Please see individual product data sheets.
WAC grading specs for STD, C and S grades have been widened to 1400–1600 µm on the coarse end.
* Is a measure of the uniformity of the particle size distribution. Uniformity coefficient ranges between 1.0-1.7. The closer to 1.0, the more uniform the beads.

Purolite cation resins are widely used for water demineralization, in conventional plants as well as in Puropack packed bed systems.

Strong Base Anion (SBA) Exchangers

Purolite offers an extensive range of Strong Base Anion (SBA) ion exchange resins based on a polystyrenic or polyacrylic matrix with either gel and macroporous structures. These products include Type I and Type II, as well as mixed base and ion selective functionality. They are supplied in a wide range of grades and ionic forms to optimize performance.

Type I resins have higher silica removal efficiency and are thermally more stable, while Type II have a higher operating capacity. Polystyrenic resins are more rigid and more hydrophobic compared to polyacrylic based resins. Typically, they also have higher thermal stability. These factors should be considered when choosing the proper strong base anion resin since they can affect performance in some applications.

In many cases, Purolite produces equivalent strong base anion products in both gel and macroporous structures. Generally, gel resins have a higher breaking weight and offer higher activity levels (working capacity). Due to their pores, macroporous resins have better resistance to osmotic shock attrition, better access to the active sites and greater resistance to fouling due to the large surface area.

Product	Type	Ionic Form	Total Volume Capacity (min.) (eq/l)	Moisture Retention (%)	Specific Gravity	Reversible Swelling (max. %)	Remarks & Applications
A400	Type I Gel Polystyrenic	Cl^-	1.3	48–54	1.08	$Cl^- \rightarrow OH^-$ 30	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	$Cl^- \rightarrow OH^-$ 30	Alternative high moisture gel anion resin for demineralization. Offers increased resistance to organics.
A600	Type I Gel Polystyrenic	Cl^-	1.4	43–48	1.09	$Cl^- \rightarrow OH^-$ 25	Premium grade resin with high total capacity and high breaking weight. Very low silica leakage.
SUPERGEL SGA550	Type I Gel Polystyrenic	Cl^-	1.4	43–48	1.09	$Cl^- \rightarrow OH^-$ 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	$Cl^- \rightarrow OH^-$ 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.
A504P	Type I Macroporous Polystyrenic	Cl^-	1.2	50–60	1.07	$Cl^- \rightarrow OH^-$ 15	Orthoporous resin able to remove both colloidal and dissolved silica.

Strong Base Anion Exchangers (Cont'd)

Product	Type	Ionic Form	Total Volume Capacity (min.) (eq/l)	Moisture Retention (%)	Specific Gravity	Reversible Swelling (max. %)	Remarks & Applications
A200	Type II Gel Polystyrenic	Cl^-	1.3	45–51	1.08	$Cl^- \rightarrow OH^-$ 20	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	1.09	$Cl^- \rightarrow OH^-$ 20	Premium grade high capacity resin offering good silica removal. Primarily used in the production of demineralized and dealkalized water.
A510Plus	Type II Macroporous Polystyrenic	Cl^-	1.15	48–56	1.08	$Cl^- \rightarrow OH^-$ 15	Macroporous version of A200 offering better resistance to OSA and organic fouling due to its polymer structure.
A850	Gel Polyacrylic	Cl^-	1.2	57–62	1.09	$Cl^- \rightarrow OH^-$ 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.
A870	Gel Dual Functionality Polyacrylic	Cl^-/ Free Base	1.25 (Cl^- form)	56–62 (Cl^- form)	1.08	$Cl^- \rightarrow OH^-$ 10	Bifunctional resin combining weak and strong base sites on the same beads, offering the highest operating capacity and excellent 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.

Demineralization plants with Purolite anion resins fulfill the water needs of the power, chemical and petrochemical industries along with many others.

Weak Base Anion (WBA) Exchangers

Purolite manufactures gel and macroporous weak base anion resins. Our weak base anion gel products have an acrylic backbone while our weak base anion macroporous products have either an acrylic or styrenic backbone.

Weak base anions are more chemically stable than strong base anions and are used for the removal of mineral acids, organic acids and other organic materials. They are highly resistant to organic fouling. The applications for weak base anion ion exchange resins are extensive — well beyond classic industrial water treatment. Tertiary amine/quaternary ammonium, pure tertiary amine, primary amine and polyamine functionalities are available.

Product	Type	Ionic Form	Total Volume Capacity (min.) (eq/l)	Moisture Retention (%)	Specific Gravity	Reversible Swelling (max. %)	Remarks & Applications
A100Plus	Macroporous Polystyrenic	Free Base	1.3	53–62 (Cl^- form)	1.04	Free Base →Cl^- 22	Most widely used WBA in IWT due to its good resistance to organic fouling and high operating capacity.
A103Plus	Macroporous Polystyrenic	Free Base	1.5	51–58 (Cl^- form)	1.04	Free Base →Cl^- 25	S grade used in the food industry for demineralization and decolorization.
A133	Macroporous Polystyrenic	Free Base	1.8	46–51 (Cl^- form)	1.04	Free Base →Cl^- 25	Suitable for demineralization and decolorization of sugar solutions. Very high capacity WBA resin.
A111	Macroporous Polystyrenic	Free Base	1.7	56–62 (Cl^- form)	1.02	Free Base →Cl^- 45	High moisture, high capacity WBA resin without any quaternary ion exchange groups. Can offer significant advantages for high organic bearing waters and sweeteners solutions.
A110	Macroporous Polystyrenic	Free Base	2.0	60–66 (Cl^- form)	1.05	Free Base →Cl^- 50	Special WBA resin with primary amine groups. High capacity. Can be used for the adsorption of CO_2.
A848	Gel Polyacrylic	Free Base	1.4	59–65	1.07	Free Base →Cl^- 15	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.
A830	Macroporous Polyacrylic	Free Base	2.75	50–56	1.10	Free Base →Cl^- 20	Very high exchange capacity polyamine resin.

Particle Size Distribution — Anion Exchangers

Product 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	425–850	1% < 425	≤ 1.35	Mixed bed grade which can be used with intermediate inert spacer in 3-component mixed bed systems (Trilite™).
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	425–1200	2% < 425	≤ 1.6	Special food grade applications (treatment of sugar solutions, etc.).
C	425–1200	2% < 425	≤ 1.6	High specific flow rate. Industrial water treatment.

Product 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 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).
Mean diameters can vary for different ionic forms. Please see individual product data sheets.
*Is a measure of the uniformity of the particle size distribution. Uniformity coefficient ranges between 1.0-1.7. The closer to 1.0, the more uniform the beads.

Purolite weak base anion exchangers are used in the demineralization process of gelatin and collagen.

Shallow Shell™ Technology Products

Purolite's Shallow Shell technology or SST®, is designed to improve softening and demineralization performance. Our R&D and manufacturing teams perfected an advanced resin bead structure to increase regeneration efficiency, reduce leakage and fouling and conserve rinse and dilution water so that systems run better, with less expense and enhanced performance.

Key Advantages:

- Requires less regenerant chemicals to achieve equal or better operating performance
- Provides savings in rinse and dilution water
- Reduces leakage at same regenerant dosage as traditional resin
- Suitable for co-flow, counter-flow and packed bed systems
- Supports ISO 14001:2015 initiatives toward environmental management and impact; uses less chemical regenerant and generates less waste

Product	Type	Ionic Form	Dry Weight Capacity (min.) (eq/kg)	Moisture Retention (%)	Specific Gravity	Reversible Swelling (max. %)	Remarks & Applications
SSTC60	Strong Acid Cation Gel Polystyrenic	Na^+	*3.8	38–46	1.20	$Na^+ \rightarrow H^+$ 8	Also available in uniform particle size as SSTPPC60. Increased resistance to iron and manganese fouling over standard softening resins.
SSTC80	Strong Acid Cation Gel Polystyrenic	Na^+	*4.0	42–48	1.20	$Na^+ \rightarrow H^+$ 7	Primarily used for softening high TDS water at elevated temperature.
SSTC104	Weak Acid Cation Gel Acrylic	H^+	*5.5	36–44	1.17	$H^+ \rightarrow Ca^{2+}$ 20 $H^+ \rightarrow Na^+$ 60	Primarily used for high TDS softening. High efficiency and less susceptible to heavy metal fouling. Very low rinse water requirements.
SSTA63	Type II Gel Polystyrenic Strong Base Anion	Cl^-	*2.6	37–45	1.12	$Cl^- \rightarrow OH^-$ 15	Primarily used for high performance demineralization. High operating capacity and good silica removal.
SSTA64	Type I Gel Polystyrenic Strong Base Anion	Cl^-	*2.7	43–51	1.08	$Cl^- \rightarrow OH^-$ 20	Primarily used for high performance demineralization. Excellent silica removal.

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

For all resin beads to work, they need to be activated. Our exclusive process leaves the center of each SST bead inactive. This eliminates the sites that take the longest to exchange, are the most difficult to regenerate and are the most susceptible to fouling.

Organics Removal

Organic materials can cause unwanted color, taste and odor in potable water supplies. Organics also represent a fouling threat to anion resins of demineralization plants and to reverse osmosis membranes. To remove organic matter, collectively measured as TOC (Total Organic Carbon), COD (Chemical Oxygen Demand) or BOD (Biological Oxygen Demand), Purolite offers a variety of brine regenerable strong base anion resins: gel polystyrenic, macroporous polystyrenic and macroporous polyacrylic. The degree of reduction depends on the specific nature of the TOC as well as the choice of resin, its porosity, contact time and resistance to irreversible fouling.

Product	Type	Ionic Form	Total Volume Capacity (min.) (eq/l)	Moisture Retention (%)	Specific Gravity	Remarks & Applications
A420S	Type I Gel Polystyrenic SBA	Cl^-	0.8	60–65	1.04	Reversible uptake of large organic molecules. Ideal for sugar applications.
A502P	Type I Macroporous Polystyrenic SBA	Cl^-	0.85	66–72	1.04	Styrenic based organic scavenger used to reduce NOM (Natural Organic Matter) and color levels of raw waters. Prevents organic fouling of downstream anion resins. S grade used for sugar decolorization.
A860	SBA Macroporous Polyacrylic	Cl^-	0.8	66–72	1.08	Acrylic based organic scavenger with high reversible sorptive capacity, better suited to brine-only regeneration than A502P. S grade primarly used for sugar decolorization.
TANEX™	SBA Type I Macroporous	Cl^-	—	68–75	–	Optimized blend of different resin chemistries and resin matrices for simultaneous colloid, tannin and other natural organic matter removal.

Organic materials can cause unwanted color, taste and odor in potable water supplies. To remove organic matter, Purolite offers a variety of brine regenerable strong base anion resins.

Ready to Use Mixed Beds

Purolite ready to use mixed bed resins are specially prepared high-quality resin mixtures designed for direct purification of water. The ratio of component resins is engineered to meet the specific requirements of each application, in order to provide the highest capacity in each situation. Performance of our ready to use mixed bed products depends on the application and on the plant layout. Several of the mixed bed resins are available with indicators which facilitate ease of operation when a simple visual indication of exhaustion is desired.

Product	Ionic Form	Cation Component	Anion Component	Remarks & Applications
MB400	H^+/OH^-	40% Strong Acid Cation Gel	60% Strong Base Anion Gel Type I	For the production of high-purity, silica-free demineralized water. Primarily used in working mixed beds or polishing for industrial water. High operating capacity, achieving conductivities less than 0.1 µS/cm in many polishing applications. Our most popular mixed bed.
MB410	H^+/OH^-	35% Strong Acid Cation Gel	65% Strong Base Anion Gel Type I	Higher anion capacity mixed bed, particularly suited for the treatment of RO permeates which contain high amounts of CO_2.
MB3710	H^+/OH^-	40% Strong Acid Cation Gel	60% Strong Base Anion Gel Type I	This product is the highest quality industrial grade mixed bed used in polishing demineralization offering enhanced performance.
MB478	H^+/OH^-	50% Strong Acid Cation Gel	50% Strong Base Anion Gel Type I	High cation capacity mixed bed, specific for the EDM market (spark erosion machining).
MB46	H^+/OH^-	50% Strong Acid Cation Gel	50% Strong Base Anion Gel Type I	Higher capacity. Resin is further processed for critical applications. Also used for direct treatment of raw waters with high alkalinity.

NOTE: Many other special customized Mixed beds are produced with and without indicators, consult your local Purolite sales office.

Ready to Use Mixed Beds with Indicator

Product	Ionic Form	Color Change On Exhaustion	Cation Component	Anion Component	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	Same performance as MB400 above but with a color indicator on exhaustion.
MB500VC	H^+/OH^-	Green (regenerated) Blue (exhausted) Indicator on cation component	40% Strong Acid Cation Gel	60% Strong Base Anion Macroporous Type I	High-contrast color change mixed bed with a UV stable indicator for the production of high quality demineralized water. Used in polishing units and direct treatment of raw waters.
MB59VC	$H^+/$ Free Base	Green (regenerated) Blue (exhausted) Indicator on cation component	60% Strong Acid Cation Gel	40% Weak Base Anion Macroporous	Very high capacity mixed bed with 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: Many other special customized mixed beds are produced with and without indicators, consult your local Purolite sales office

UltraClean™ Products for Ultrapure Water

Purolite ion exchange resins for ultrapure water meet the precise needs of the electronics industry for wafer and microchip production. These needs require the highest possible water quality (<1 ppb Total Organic Carbon (TOC) and >18.2 MΩ·cm resistivity, with minimum rinse times), while eliminating contamination of the high purity circuits when ion exchange resin is first installed.

All UltraClean resins undergo treatment to remove the organic residuals that are left on ion exchange resins after manufacturing. They are highly regenerated in the H^+ and OH^- forms.

Product	Type	Ionic Form	Total Volume Capacity (min.) (eq/l)	Moisture Retention (%)	Specific Gravity Moist Beads	Remarks & Applications
ULTRACLEAN 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.
ULTRACLEAN UCW5072	Gel Strong Base Anion	OH^-	1.0	52–58 (Cl^- form)	1.07	Ultrapure water anion resin with very low TOC release operating in single beds or mixed beds with cation component UCW9126.
ULTRACLEAN UCW1080	Macroporous Complex Amine	Free Base	0.6	61–67 (Cl^- form)	1.10	Semiconductor industry — Ultrapure water for selective boron removal to non-detectable (ND) levels.

Ultrapure Water Mixed Beds

Product	Ionic Form	Total Volume Capacity (min.) (eq/l)	Moisture Retention (%)	Remarks & Applications
ULTRACLEAN UCW9964	H^+ / OH^-	Cation: 1.9 Anion: 1.0	Cation: 49–54 Anion: 52-58 (Cl^- form)	Highest purity separable MB for final polishing and point of use treatment for UPW systems. Highest resistivity and very low TOC release.
ULTRACLEAN UCW9966	H^+ / OH^-	Cation: 1.9 Anion: 1.0	Cation: 49–54 Anion: 52–58 (Cl^- form)	Highest purity non separable MB for final polishing and point of use treatment for UPW systems. Highest resistivity and very low TOC release.
ULTRACLEAN UCW3600	H^+ / OH^-	Cation: 1.9 Anion: 1.1	Cation: 49–54 Anion: 55–62	High operating capacity separable mixed bed for UPW systems.
ULTRACLEAN UCW3700	H^+ / OH^-	Cation: 1.9 Anion: 1.0	Cation: 49–54 Anion: 60–70	Separable mixed bed for UPW systems.
ULTRACLEAN UCW3900	H^+ / OH^-	Cation: 2.0 Anion: 1.0	Cation: 46–50 Anion: 60–70	Separable mixed bed with higher cation capacity for UPW systems.

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

Nuclear Grade Products

Purolite nuclear grade NRW ion exchange resins are designed exclusively for use in nuclear power operations and backed by our technical support team. All nuclear grade resins meet the highest published quality specifications required by nuclear power industry worldwide. Purolite's diverse NRW nuclear grade product line allows power plants to address all areas of water purification within nuclear operations.

Product(s)	Type	Ionic Form	Total Capacity (min.) (eq/l)	Moisture Retention (%)	Remarks & Applications
NRW100 NRW1000*	Gel Strong Acid Cation	H^+	1.8	51–55	Make up demineralization and radwaste systems.
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 Li^+ and $^7Li^+$ forms. Higher capacity version of NRW1000.
NRW1160* (1)	Gel Strong Acid Cation	H^+	2.5	36–41	Primary delithiation and as cation in CVCS polishing mixed beds. Condensate polishing cation component for non-regenerable applications.
NRW160 NRW1600* (1)	Macroporous Strong Acid Cation	H^+	2.1	43–48	Layering on polishing mixed beds. Primary purification cation beds for delithiation and outage clean up. Selective for divalent metal isotopes and ^{137}Cs. Also available in Li^+ and $^7Li^+$ form. Condensate polishing cation component for non-regenerable applications.
NRW1180	Gel Strong Acid Cation	H^+	2.6	30–35	More resistant to oxidants, similar to what is found in spent fuel pool applications.
NRW400 NRW4000*	Gel Strong Base Anion	OH^-	1.0	48–54 (Cl^- form)	Anion used in regenerable nuclear makeup systems and separated bed radwaste systems. Also used in regenerable mixed beds and mixed beds for radwaste.
NRW600 NRW6000* (2)	Gel Strong Base Anion	OH^-	1.1	43–48 (Cl^- form)	Primary cleanup, deboration beds, and secondary separate bed demineralizer anion. Also used as underlay in condensate polishing.
NRW7000*	Gel Strong Base Anion	OH^-	1.15	54–60 (OH^- form)	Anion component for condensate polishing. Separate bed demineralizer anion. Also used as underlay in condensate polishing.
NRW8000*	Gel Strong Base Anion	OH^-	1.3	40–45 (Cl^- form)	Anion component for BWR deep bed condensate polishing.
NRW5010 (3)	Macroporous Strong Base Anion	OH^-	0.4	70–75 (Cl^- form)	Special nuclear grade colloid removal resin for surface layer on mixed beds to achieve ultra-polishing of primary coolant and radwaste.
NRW5070 (3)	Macroporous Strong Base Anion	OH^-	1.0	50–55 (Cl^- form)	Special nuclear grade colloid removal resin with mechanical durability for surface layer on mixed beds to achieve ultra-polishing of primary coolant and radwaste.
NRW5330B	Iron Impregnated Macroporous Strong Base Anion	Borate	—	—	Spent fuel pool for removal of trace heavy metals such as antimony and nickel. Used for silica removal.

NOTE: (1) Available in low sodium (LS) version for polishing steam generator blowdown and layering on polishing mixed beds when operating past amine breaks.
(2) Available in extra low chloride (XLC) version for used in lithiated polishing mixed bed.
(3) Available in extra low chloride (XLC) version.
* Uniform particle size

Nuclear Grade Mixed Beds

Product	Ionic Form	Components	Component Capacities (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) (3) (4)	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^- (3)	Gel Cation Gel Anion	2.5/1.15	Primary polishing, condensate polishing, spent fuel pool demineralizer, steam generator blow down demineralizer and reactor water clean up.
NRW3860	H^+/OH^-	Gel Cation Gel Anion	2.6/1.1	High crosslinked gel cation that is good for use in spent fuel pool applications where sulfate released from the cation is an issue.

(1) Cation component available in $^7Li^+$ form. (2) Cation component available in Li^+ form. (3) Available in low sodium (LS) version.
(4) Available in extra low chloride (XLC) version.

Purity of Nuclear Grade Ion Exchangers

Cation Resins

Ionic Form	Conversion
H^+	99.9% min.
Li^+ or $^7Li^+$	99.9% min.

Impurities	Mg/Kg Dry
Sodium	#40 max.
Iron	50 max.
Heavy Metals as Lead	40 max.

Anion Gel Resins

Ionic Form	Conversion
OH^-	95% min.
CO_3^{2-}	5% max.
§*Cl^-	0.1% max.
**SO_4^{2-}	0.1% max.

Impurities	Mg/Kg Dry
Sodium	20 max.
Iron	50 max.
Heavy Metals as Lead	30 max.

NOTES:

Nuclear grade mixed beds are normally supplied with near stoichiometric equivalents of anion and cation resin sites. Other ratios can be supplied on request.

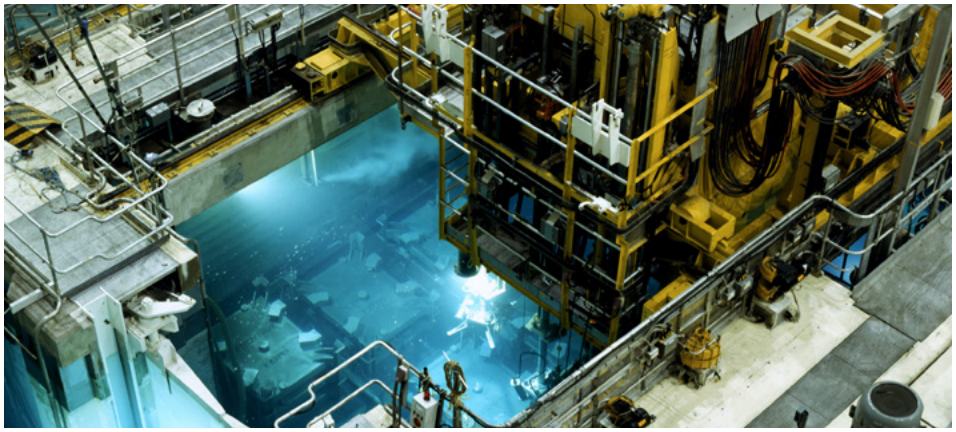
Purolite Nuclear Grade Products are in operation within the defense industry or nuclear power stations in the Americas, Europe and Asia and carry formal approvals from leading operators of nuclear installations. They meet internationally recognized specifications from the leading suppliers of nuclear power station designs.

#Certain Nuclear Grade Cation and Mixed Bed Products are available as low sodium (LS) version, which have an extra low sodium content of 10 ppm mg/kg dry maximum.

§Certain Nuclear Grade Anion and Mixed Bed Products are available as extra low chloride (XLC) version, which have an extra low ionic chloride content of 0.05% maximum.

*0.2% max. for NRW5070

**0.2% max. for NRW5070, 0.3% max. for NRW5010



Purolite's diverse NRW nuclear grade product line meets the highest published quality specifications required by nuclear power industry worldwide and allows power plants to address all areas of water purification within nuclear operations.

Condensate Polishing Products

Condensate polishing normally applies to the treatment of condensed steam from turbines operating in the power industry. It can also be applied to condensed steam from any steam system being returned to the boiler. The ultimate goal of condensate polishing is to remove all soluble impurities and protect the high-pressure boilers. Note: For nuclear condensate polishing products, please see Nuclear Grade Products.

Deep Bed Condensate Polishing Cations

Product	Type	Total Capacity (min.) (eq/l)	Moisture Retention (%)	Particle Size (µm)	Remarks & Applications
SUPERGEL SGC650H	Gel Strong Acid Cation	2.0 (H^+ form)	46–50 (H^+ form)	Mean Diameter 670 ± 50	Highly crosslinked, high capacity, uniform particle size for excellent chemical and hydraulic performance.
SUPERGEL SGC100X10TLH	Gel Strong Acid Cation	2.0 (H^+ form)	45–49 (H^+ form)	710–1200	Highly crosslinked, high capacity, coarse particle size for enhanced separation from the anion component. Suitable for Trilite MB.
C150MBH	Macroporous Strong Acid Cation	1.8 (Na^+ form)	54–59 (H^+ form)	425–1200	High mechanical and osmotic stability.
C150TLH	Macroporous Strong Acid Cation	1.8 (Na^+ form)	54–59 (H^+ form)	710–1200	High mechanical and osmotic stability, coarse particle size for enhanced separation from the anion component. Suitable for Trilite MB.
PPC150H	Macroporous Strong Acid Cation	1.8 (Na^+ form)	54–59 (H^+ form)	Mean Diameter 770 ± 100	High mechanical and osmotic stability, uniform particle size for excellent chemical and hydraulic performance.

NOTE: All products are also available in Na^+ form, if required. Certain amine form products are available upon request.

Deep Bed Condensate Polishing Anions

Product	Type	Total Capacity (min.) (eq/l)	Moisture Retention (%)	Particle Size (µm)	Remarks & Applications
SUPERGEL SGA550MB	Gel Strong Base Anion	1.4 (Cl^- form)	43–48 (Cl^- form)	Mean Diameter 550 ± 50	Highly crosslinked, high capacity, uniform particle size for excellent chemical and hydraulic performance. Also available in SO_4^{2-} and OH^- form.
A500MBPlus	Macroporous Strong Base Anion	1.15 (Cl^- form)	57–63 (Cl^- form)	425–1200	High mechanical and osmotic stability.
A500TLPlus	Macroporous Strong Base Anion	1.15 (Cl^- form)	57–63 (Cl^- form)	425–850	High mechanical and osmotic stability, small particle size for enhanced separation from the cation component. Suitable for Trilite MB. Also available in SO_4^{2-} form.
PFA500MBPlus	Macroporous Strong Base Anion	1.15 (Cl^- form)	57–63 (Cl^- form)	Mean Diameter 570 ± 50	High mechanical and osmotic stability, uniform particle size for excellent chemical and hydraulic performance.

NOTE: All anion products listed here are antistat treated to minimize clumping between cation and anion components.
All products can be supplied without antistat treatment upon request.

Microlite® Products

The Microlite series includes individual anion and cation exchangers as well as premixed powdered ion exchange resin-fiber blends that were developed for use in various condensate polishing systems for the power industry. They offer the flexibility of pre-mixed, ready to use products. Purolite is the only manufacturer of powdered resin that makes the base ion exchange components.

The Microlite brand products are available in many forms:

- MB Series: hydrogen/hydroxide forms and custom blends
- CG Series: hydrogen/hydroxide forms with fiber
- PR Series: individual anion or cation component
- FC Series: fiber

Product	Type	Functional Group	Ionic Form	Total Capacity (min.) (eq/kg)	Moisture Content (%)	Standard Packaging Dry Weight (kg)	Remarks & Applications
MICROLITE PrCH	Cation	Sulfonic	H^+	4.8	45–62	8.8 (19.5 lb.)	Powdered cation hydrogen form.
MICROLITE PrCN	Cation	Sulfonic	NH_4^+	4.5	40–60	10.2 (22.5 lb.)	Powdered cation ammonia form.
MICROLITE PrAOH	Anion	Quaternary Ammonium	OH^-	4.0	50–60	5.7 (12.5 lb.)	Powdered anion hydroxide form.
MICROLITE FC+	Cellulose Fiber	Inert	—	—	55–75	4.55 (10 lb.)	Specialty cellulose fiber.

Powdered Resin Premixes

Product	Type	Functional Group	Ionic Form	Total Capacity (min.) (eq/kg)	Ratio Cation : Anion (Dry Wt.)	Ratio Fiber : Resin	Standard Packaging Dry Weight (kg)	Remarks & Applications
MICROLITE CG12H	Cation/ Anion/Fiber	Sulfonic/ Quaternary Ammonium	H^+/OH^-	4.8/4.0	4 : 5	1 : 2	5.45 (12 lb.)	Resin/fiber blend. Also available in ammonium/ hydroxide form.
MICROLITE CG19H	Cation/ Anion/Fiber	Sulfonic/ Quaternary Ammonium	H^+/OH^-	4.8/4.0	4 : 5	1 : 9	5.45 (12 lb.)	Resin/fiber blend. Also available in ammonium/ hydroxide form.
MICROLITE CG4H	Cation/ Anion/Fiber	Sulfonic/ Quaternary Ammonium	H^+/OH^-	4.8/4.0	1 : 1	1 : 1	5.45 (12 lb.)	Resin/fiber blend. Also available in ammonium/ hydroxide form.
MICROLITE MB1/1H	Cation/ Anion	Sulfonic/ Quaternary Ammonium	H^+/OH^-	4.8/4.0	1 : 1	—	5.45 (12 lb.)	Also available in ammonium/hydroxide form.

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

Hydrometallurgical Products

Metals can be extracted from ores using several methods including hydrometallurgy, pyrometallurgy or physical means and their combinations. Hydrometallurgy is the process of extracting metals from ores by transferring the metal of interest from the ore into an aqueous phase and recovering the metal from the resulting pregnant liquor. Purolite has supplied ion exchange and chelating resins to the hydrometallurgy industry for over 30 years. Advanced ion exchange technology is used for the primary recovery of metal or the removal of impurities to increase the value and purity of the final product.

Applications of ion exchange in hydrometallurgy include gold recovery, uranium recovery, molybdenum recovery, impurity removal and effluent treatment to ensure adherence to environmental standards to allow recycling and re-use.

Product	Type	Functional Group	Ionic Form	Total Capacity (min.)	Moisture Retention (%)	Remarks & Applications
PUROGOLD™ MTA1930	Macroporous Mixed Base Anion	Mixed Weak and Strong Base Groups	Cl^-	3.8 eq/kg	46–56	Low strong base capacity resin for recovery of gold from ores by cyanide leach process. Elution of gold with acidic thiourea. Suitable for RIP process. 800–1300 µm grading.
PUROGOLD MTA9920	Macroporous Mixed Base Anion	Mixed Amines	Free Base	4.4 eq/kg (Cl^- form)	47–55 (Cl^- form)	Medium base resin for recovery of gold from alkaline cyanide leach liquor. Simplified elution of gold with alkaline sodium cyanide. Suitable for use in RIP process. 800–1300 µm grading.
PUROGOLD MTA5011	Macroporous Strong Base Anion	Quaternary Ammonium	Cl^-	1.15 eq/l	54–61	For recovery of gold complexes obtained from thiosulfate processing of gold ore. Suitable for RIP process. 800–1300 µm grading.
PUROGOLD MTA5013SO4	Macroporous Strong Base Anion	Quaternary Ammonium	SO_4^{2-}	1.15 eq/l (Cl^- form)	54–61 (Cl^- form)	For recovery of gold complexes obtained from the thiosulfate processing of gold ore. Suitable for RIP process. 1000–1600 µm grading.
PUROGOLD MTA5015SO4	Macroporous Strong Base Anion	Quaternary Ammonium	SO_4^{2-}	1.15 eq/l (Cl^- form)	54–61 (Cl^- form)	For recovery of gold complexes obtained from the thiosulfate processing of gold ore. Suitable for RIP process. 710–1400 µm grading.
PUROMET™ MTA6002PF	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 process. Uniform particle size. Mean diameter 520-620 µm grading.
PUROMET MTA6601	Gel Strong Base Anion	Pyridinium	Cl^-	1.3 eq/l	44–52	For the extraction of uranyl sulfate complexes from the sulfuric leachates. Suitable for RIP process. 800–1400 µm grading.

Hydrometallurgical Resins (Cont'd)

Product	Type	Functional Group	Ionic Form	Total Capacity (min.)	Moisture Retention (%)	Remarks & Applications
PUROMET MTA4601PFSO4	Gel Strong Base Anion	Pyridinium	SO_4^{2-}	1.3 eq/l (Cl^- form)	47–54 (Cl^- form)	For the extraction of uranyl sulfate complexes from the clean sulfuric solutions. Uniform particle size. Mean diameter 520-620 µm grading.
PUROMET MTA5012	Macroporous Strong Base Anion	Quaternary Ammonium	Cl^-	1.15 eq/l	54–61	For uranium recovery. Suitable for RIP process. 800–1300 µm grading.
PUROMET MTA5601	Macroporous Strong Base Anion	Pyridinium	Cl^-	1.15 eq/l	49–58	For uranium recovery from sulfuric solutions. Suitable for RIP process. 800–1400 µm grading.
PUROMET MTA1011	Macroporous Mixed Base Anion	Mixed Weak and Strong Base Groups	Cl^-	3.8 eq/kg	46–56	For molybdenum recovery from acid solutions.
PUROMET MTS9300	Macroporous Chelating	Iminodiacetic	Na^+	50 g Cu/l	52–60	For base metals recovery from weak acid solutions. Widely used as a general metals polisher from a wide variety of wastes. Extremely high copper capacity. Countless applications in non-ferrous hydrometallurgy.
PUROMET MTS9301	Macroporous Chelating	Iminodiacetic	Na^+	50 g Cu/l	52–60	For base metals recovery from weak acid solutions. Suitable for RIP process. 800–1300 µm grading.
PUROMET MTS9500	Macroporous Chelating	Aminophosphonic	Na^+	26 g Ca/l	57–65	For sorption of zinc, iron and other metals from weak acidic solutions. For recovery of uranium from phosphoric acid and $NiSO_4$ purification.
PUROMET MTS9600	Macroporous Chelating	Bis-picolylamine	SO_4^{2-}	35 g Cu/l	50–60	Purification of plating baths and copper removal from acid solutions. Separation of cobalt and nickel.
PUROMET MTA1701	Macroporous Weak Base Anion	Complex Amine	Free Base	1.3 eq/l	43–46 (Cl^- form)	For selective sorption of rhenium from acid streams. Suitable for RIP process. 600–1200 µm grading.
PUROMET MTA1721	Gel Weak Base Anion	Complex Amine	Free Base	1.2 eq/l	25–45 (Cl^- form)	For separation of rhenium from molybdate.
PUROMET MTS9840	Macroporous Weak Base / Chelating	Polyamine	Free Base	2.7 eq/l	50–56	For tungsten impurity removal from molybdate solutions.
PUROMET MTS9570	Macroporous Strong Acid Cation / Chelating	Mixed Sulfonic and Phosphonic	H^+	18 g Fe/l	55–70	For removal of ferric iron from copper, nickel or cobalt electrolytes as well as molybdenum sorption from strong acid solutions.

NOTE: Some products can be supplied in customized ionic form.

Metals Plating Products

Large amounts of water are used in the plating processes to make-up treatment baths and to rinse away residual salts, acids or alkalis from treated parts. Typically, after each step of the process, the material is rinsed with water which is conveniently recycled after demineralization with special ion exchange resins. Ion exchange resins and synthetic adsorbents can be used in the metal plating industry even to remove impurities from pickling and plating liquors, so extending their lifetime. Treatment of effluents removes toxic metals, allowing safe disposal of the waste liquor.

Product	Type	Functional Group	Ionic Form*	Total Capacity (min.)	Moisture Retention (%)	Remarks & Applications
MTC1500	Macroporous Strong Acid Cation	Sulfonic	Na^+	1.8 eq/l	48–53	Metals and cations removal in rinse waters demineralization and recycling.
MTC1600	Macroporous Strong Acid Cation	Sulfonic	Na^+	2.3 eq/l	35–40	Galvanic baths rejuvenation. Very high capacity and resistance to oxidation.
MTA1000	Macroporous Weak Base Anion	Tertiary Amine	Free Base	1.3 eq/l	53–62 (Cl^- form)	Strong acids and cyanide complexes removal in rinse waters demineralization and recycling.
MTA1030	Macroporous Weak Base Anion	Tertiary Amine	Free Base	1.5 eq/l	51–58 (Cl^- form)	Higher capacity and higher stability WBA resin for rinse waters demineralization and recycling.
MTA1330	Macroporous Weak Base Anion	Tertiary Amine	Free Base	1.8 eq/l	46–51 (Cl^- form)	Very high capacity WBA resin for longer production cycles in rinse waters demineralization and recycling.
MTA5000	Type I Macroporous Strong Base Anion	Quaternary Ammonium	Cl^-	1.15 eq/l	57–63	Weak acid anions removal in rinse waters demineralization and recycling. Superior performances in fluoride, silica and boron removal.
MTA5100	Type II Macroporous Strong Base Anion	Quaternary Ammonium	Cl^-	1.15 eq/l	48–56	High operating capacity for cyanide, silica and weak acid anions removal in rinse waters demineralization and recycling.
MTA5500	Type I Gel Strong Base Anion	Quaternary Ammonium	Cl^-	1.4 eq/l	43–48	Iron and other metals removal from concentrated HCl baths.
MTA8500	Gel Acrylic Strong Base Anion	Quaternary Ammonium	Cl^-	1.2 eq/l	57–62	SBA resin with high resistance to organic fouling in rinse waters demineralization and recycling. Acid retardation.
MTA8700	Gel Acrylic Mixed Base Anion	Quaternary Ammonium	Free Base/ Cl^-	1.25 eq/l (Cl^- form)	56–62 (Cl^- form)	Mixed base resin for rinse waters demineralization and recycling. High operating capacity coupled with the capability to remove traces of weak acid anions. Excellent resistance to organic fouling.
MTA4001SO4	Type I Gel Strong Base	Quaternary Ammonium	SO_4^{2-}	1.3 eq/l (Cl^- form)	48–54 (Cl^- form)	Recovery of traces of precious metals from cyanide solutions.

Chelation Products

Purolite's wide range of chelating resins contain special functional groups that gives these resins superior selectivity for specific target metals. Chelation resins are found in a wide range of metals removal and recovery applications, from the primary recovery of precious metals as well as the removal of impurities that may be present as mere traces. Typical applications include brine purification in the chlor-alkali industry, extraction and purification of base metals (copper, nickel, cobalt, zinc), removal of boron from potable and process water, recovery of precious metals, removal of toxic metals like mercury and many others. Regenerable and non-regenerable chelating resins are available to cover all different needs.

Product	Functional Group	Ionic Form*	Capacity (min.)	Moisture Retention (%)	Remarks & Applications
PUROMET MTS9100	Amidoxime	Free Base	40 g Cu/l	52–60	Selective removal of heavy metals and precious metals recovery from process solutions.
PUROMET MTS9140	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.
PUROMET MTS9200	Isothiouronium	H^+	275 g Hg/l	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.
PUROMET MTS9500	Aminophosphonic	Na^+	26 g Ca/l	57–65	Selective removal of heavy metals from wastewaters. Purification of selected plating baths in the surface finishing industry. (i.e. bright nickel bath rejuvenation).
PUROMET MTS9600	Bis-picolylamine	SO_4^{2-}	35 g Cu/l	50–60	High affinity for transition metals, even at very low pH or in the presence of complexing agents. Useful for cobalt electrolyte purification and Cr(III) plating bath purification.
PUROMET MTS9850	Polyamine	Free Base	2.3 eq/l	52–57	Removal of heavy metals present in complexed form (e.g. EDTA complexes) from wastewaters.
S108	N-methylglucamine	Free Base	0.6 eq/l	61–67 (Cl^- form)	Selective removal of boron from potable water and water used in agriculture/ horticulture irrigation. Also, for use in wastewater and process water applications.
S930Plus	Iminodiacetic	Na^+	50 g Cu/l	52–60	Purification of brine in chlor-alkali plants offering highly efficient removal of strontium.
S9320	Iminodiacetic	Na^+	50 g Cu/l	54–62	Purification of brine in chlor-alkali plants offering highly efficient removal of strontium. Higher operating capacity and kinetics, high mechanical and osmotic strength.
S940	Aminophosphonic	Na^+	20 g Ca/l	55–65	Used in purification of brine in chlor-alkali plants where strontium control is not required.

Potable and Groundwater Products

Purolite is at the forefront in meeting the new challenges of purifying water for potable use. We continue to develop specialized ion exchange resins and adsorbent solutions focused on reducing waste and operating costs. The wide variety of contaminants that need removal often requires a customized approach.

Some contaminants are removed by relying largely on the ion exchange properties of our resins (e.g., nitrate, hexavalent chromium and uranium) while others (e.g., perchlorate and PFAS) rely on the combination of unique ionic, adsorptive and hydrophobic characteristics of our specialty resins. Special ion exchange resins, chelating resins, hybrid media and granular products are available to target almost all contaminants potentially impacting the quality of the water we drink.

Product	Type	Functional Group	Ionic Form	Total Capacity (min.) (eq/l)	Moisture Retention (%)	Remarks & Applications
C120E	Gel Strong Acid Cation	Sulfonic Acid	Na^+	1.5	56–60	Designed especially for small scale domestic softening.
C100E	Gel Strong Acid Cation	Sulfonic Acid	Na^+	1.9	46–50	Softening and demineralization resin, widely used in industrial and domestic applications.
SSTC6000E	Shallow Shell Strong Acid Cation	Sulfonic Acid	Na^+	3.8*	40–48	SST resin for high efficiency potable water softening and iron removal.
C104EPlus	Porous Polyacrylic Weak Acid Cation	Carboxylic Acid	H^+	4.7	45–55	Designed for softening, dealkalization and partial deionization applications.
C107E	Porous Polyacrylic Weak Acid Cation	Carboxylic Acid	H^+	3.6*	53–58	Specifically designed dealkalization resin for use in small cartridges for domestic applications. Not usually regenerated.
C115E	Porous Polymethacrylic Weak Acid Cation	Carboxylic Acid	H^+	3.5	46–53	Very weakly acidic for process applications. Recommended for the CARIX™ process.
C100EAg	Gel Strong Acid Cation	Sulfonic Acid	Na^+	1.9	46–50	Softening resin with bacteriostatic properties containing a small proportion of special silver loaded resin.
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. Regenerable resin.

* Capacity expressed as dry weight capacity in eq/kg.

Potable and Groundwater (Cont'd)

Product	Type	Functional Group	Ionic Form	Total Capacity (min.) (eq/l)	Moisture Retention (%)	Remarks & Applications
A532E	Gel Strong Base Anion	Complex Amino	Cl^-	0.6	40–48	Ultra-high selectivity and capacity for perchlorate, pertechnetate and other oxyanions from water.
PFA694E	Gel Polystyrenic	Complex Amino	Cl^-	—	—	Removal of perfluoroalkyl and polyfluoroalkyl substances. Reduces PFAS to non-detect levels ranging from 1 to 5 parts per trillion.
A600E/9149	Type I Gel Strong Base Anion	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.
PGW6002E	Type I Gel Strong Base Anion	Quaternary Ammonium	Cl^-	1.7	40–45	Very high capacity. Suitable for oxyanion removal such as hexavalent chromate. Both single-use and brine regenerable, depending on influent water chemistry. Buffered version produces treated water with stable pH and chloride to sulfate mass ratio (CSMR), and eliminates extended rinsing at startup.
BROMIDE Plus/9218	Gel Polystyrenic	Proprietary	Cl^-	—	37–45	Selective removal of bromide ions, to prevent the formation of toxic bromate after water sterilization.
S106	Epoxy	Polyamine	Free Amine	2.0	60–70	High capacity single use resin for hexavalent chromium removal.
S108	Macroporous Anion	N-methylglucamine	Free Base	0.6	61–67 (Cl^- form)	Selective removal of boron from potable water and water used in agriculture/horticulture irrigation.

NOTE: PFA694E and PGW6002E are also available in a buffered form.

Product	Type	Functional Group	Remarks & Applications
FerrIX™ A33E	Macroporous Polystyrenic	Iron oxide infused resin	For arsenic removal. Iron infused, high purity, hybrid media for selective arsenic removal. Effective on both As(V) and As(III).
MZ10Plus	Manganese Zeolite	–	Activated greensand for removal of iron, manganese and hydrogen sulfide from ground water. Potable water treatment and pre-treatment for ion exchange resins plants.

Food and Beverage Products

Purolite provides a comprehensive line of products for food and beverage industry applications including beet sugar refining, cane sugar refining and sugar decolorization along with unique products for new challenges. We also offer a full line of high-performance resins for all corn, wheat and cellulose hydrolysate separations and refining operations along with purification of organic acids.

Application	Products	Process	Solution Treatment
Amino Acids	PPC100S, C141NH4/9172	Extraction	Lysine
	A502PS	Decolorization	MSG
Biomass Purification	C150S, A103SPlus	Demineralization	Cellulose hydrolyzate
	PCR642H, PCA441SO4	Chromatographic separation	Cellulose hydrolyzate
Collagen	MN102	Taste & odor removal	Collagen
Dairy	C115E, A860S	Extraction	Lactoferrin
	SSTC6000E, A133S	Demineralization	Cheese whey, milk whey
	S108	Decolorization & boron removal	Lactulose
	C100X10, A847S	Demineralization	Lactulose
	PCR642Ca	Chromatographic separation	Lactulose
	MN102	Color, taste & odor removal	Lactulose
Ethanol	C150S, A500SPlus	Demineralization	Ethanol
Fruit Juice	PAD900, MN102, PAD950	Debittering: limonin, naringin	Citrus juices
	A133S	Deacidification	Grapefruit juice, apple juice
	PAD500, PAD600, PAD900, PAD950, MN102	Patulin removal	Apple juice
	PAD500, PAD600, PAD950	Polyphenol recovery	Olives, grapes, berries
	PAD500, PAD600, PAD900, PAD950	Anthocyanin recovery	Berries
Gelatin	PPC150S, A103SPlus, A133S, A845S, A847S	Demineralization	Gelatin
Glycerin	C150S, A103SPlus	Demineralization	Glycerin
	PCR642NA	Chromatographic separation	Glycerin

Food and Beverage Products (Cont'd)

Application	Products	Process	Solution Treatment
Organic Acids	C100S, C160S, SSTC6000E, A845S, A830S, A847S	Demineralization	Citric
	A847DL	Chromatographic separation	Citric
	C100S, C160S, SSTC6000E, A845S, A830S, A847S	Demineralization	Lactic
	A847DL	Chromatographic separation	Lactic
	A847S	Demineralization	Glycolic
Sugar – Beet Sugar	C160S, C100S, SSTC6000E, C104SPlus, C107E	Thin juice softening	Sucrose
	SSTPCR642K	Molasses desugarization	Sucrose
Sugar — Cane Sugar	A860S, A502PS, A503S, A420S, SSTA64, MN102	Decolorization	Sucrose
	A440S, A500SPlus, C115EC, C104SPlus	Demineralization	Sucrose
	MN102	Color, taste and odor removal	Sucrose
	MBS12/9231, PRA420Cl, PrAOH	Color and ash polishing	Sucrose
	C124SH	Inversion	Sucrose
	IP4, IP1	Upflow distributor protection	Sucrose
Sweeteners — Corn/Wheat	A100SPlus, A103SPlus, A133S, A111S, A1496S, C150S, C160S	Demineralization	Glucose, dextrose, maltodextrin, fructose
	PCR642Ca, PCR631Ca, SSTPCR642Ca, SSTPCR732Ca	Chromatographic separation	Fructose
	PCR642Na	Chromatographic separation	Dextrose
	C150MB, A510SMBPlus	Mixed bed polishing	Fructose
	MN102, MN152, MN502	Color, taste & odor removal	Fructose, glucose syrups

Bitterness in citrus juices is mainly caused by the presence of limonoids (tri-terpenes) and flavanone glycosides (flavonoids), such as limonin in orange juice and naringin in grapefruit juice. Purolite adsorbent resins are utilized in commercial debittering processes.

Food and Beverage Products (Cont'd)

Application	Products	Process	Solution Treatment
Sweeteners — Dietary Fiber	PCR642K	Chromatographic separation	Polysaccharide
Sweeteners — High Intensity	PAD1200	Extraction	Stevia
	PCR642Ca	Chromatographic separation	Allulose
	LIFETECH™ ECR8409F, ECR8409M, ECR8309M/PH4	Isomerization	Allulose
Sweeteners — Polyols	A103SPlus, A133S, A500SPlus, C150S, C160S	Demineralization	Sorbitol, maltitol, erythritol
	PCR631Na	Chromatographic separation	Erythritol
	PCR642Ca	Chromatographic separation	Maltitol
	C150SMB, A500MBPlus, A510SMBPlus	Mixed bed polishing	Sorbitol, maltitol, erythritol
	MN502	Color, taste & odor removal	Sorbitol, maltitol, erythritol
Vitamin E	CP916OHPlus	Chromatographic separation guard	Tocopherols
	A503MBOH/4363	Chromatographic separation	Tocopherols
Wine	C100S, SSTC6000E	Tartaric stabilization	Wine
	ECR8315M	Allergen removal	SO_2
	A103SPlus	Volatile acidity removal	Wine permeate

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."

Purolite products are used to remove sulfite allergens and provide stabilization of tartrates in wine.

Chromatographic Separation Products

Purolite chromatographic separation resins for sweetener and bio-industry separations are high quality polystyrene- and acrylic-based products with uniform spherical beads, suitable for separations which depend on relatively small differences of affinity. They are designed mainly for use in chromatographic columns on an industrial plant scale.

Typical applications are:

- Polyol separation
- Separation of salts and sugars
- Separation of sugars resulting from hydrolysis of biomass
- Separation of acids and sugars from hydrolysis of biomass
- Fructose and allulose enrichment
- Dextrose enrichment
- Beet molasses desugarization

Cation Separation Resins

Product	Type	Total Volume Capacity, Na^+ Form (min.) (eq/l)	Mean Size Typical (µm)	Moisture Retention, Na^+ Form (%)	Moisture Retention, H^+ Form (%)	Remarks & Applications
PCR145	Macroporous Strong Acid Cation	1.5	260–300	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	52–55	55–62	
PCR632	Gel Strong Acid Cation	1.6	210–250	52–55	55–61	
PCR642	Gel Strong Acid Cation	1.6	295–335	52–56	59–62	
PCR651	Gel Strong Acid Cation	1.6	330–370	52–56	59–62	
PCR652	Gel Strong Acid Cation	1.6	320–360	52–56	59–62	
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	2.05	210–230	42–46	48–53	

Product	Type	Mean Size Typical (µm)	Remarks & Applications
SSTPCR642	Gel Strong Acid Cation	300–340	Higher purity, higher recovery and lower elution water.
SSTPCR732	Gel Strong Acid Cation	200–240	Higher purity, higher recovery and lower elution water.

Anion Separation Resins

Product	Type	Total Volume Capacity, (Cl^- Form) (min.) (eq/l)	Mean Diameter (µm)	Moisture Retention, (Cl^- Form) (%)	Remarks & Applications
PCA433	Gel Strong Base Anion	1.3	150–300 (particle size range)	48–57	Anion chromatographic separation resin can be supplied in Cl^-, SO_4^{2-}, OH^- forms.
PCA441	Gel Strong Base Anion	1.4	285–315	47–52	Xylose enrichment.
A503MBOH/4363	Macroporous Strong Base Anion	1.0	300–600 (particle size range)	61–66	Vitamin E purification.
A847DL	Gel Weak Base Anion	1.6 (FB form)	300–630 (particle size range)	56–62 (FB form)	Used for citric and lactic acid purification.

Purolite's chromatographic separation products are used in various sugar and sweetener applications including beet molasses desugarization.

Adsorbents

Purolite polymeric adsorbent resins are high-porosity synthetic spherical beads, typically used for the purification and extraction of target molecules in aqueous solutions. Purolite adsorbents are safe and efficient because toxic solvents and expensive distillation and precipitation processes are not required for effective compound extraction. Also, unlike other adsorption technologies, additional benefit of recyclability is provided. For maximum adsorption, the polymeric adsorbent resins have high internal surface area, high porosity and controlled pore size distribution.

Purolite has two families of adsorbents, PuroSorb™ (non-functionalized divinylbenzene and acrylic polymers and Macronet™ (hyper-crosslinked, functionalized and non-functionalized styrenic polymers). These product lines are offered in a broad range of matrices, porosities and pore sizes that make them ideal for a variety of industrial applications.

PuroSorb Products

Product	Polymer Matrix	Typical Pore Diameter (Å)*	Typical Pore Volume (ml/g)*	Typical Surface Area (m^2/dry g)*	Moisture Retention (%)	Remarks & Applications
PUROSORB PAD400	Polydivinylbenzene	360	1.0	700	47–55	Decolorization, polyphenol extraction, large antibiotics (e.g., macrolides & peptides).
PUROSORB PAD500	Polydivinylbenzene	110	1.5	800	63–69	Anthocyanin recovery, patulin removal, antibiotic extraction.
PUROSORB PAD600	Polydivinylbenzene	90	1.3	850	56–64	Beta lactam & other small antibiotics, isolation and catechin extraction.
PUROSORB PAD900	Polydivinylbenzene	220	1.9	850	67–73	Polyphenol extraction, juice debittering, flavor extraction, pesticide removal, curcumin purification.
PUROSORB PAD1200	Polydivinylbenzene	240	1.7	700	57–65	Peptide purification (e.g., insulin, flavor extraction, hormone and statin drugs isolation), stevia purification.
PUROSORB PAD610	Polymethacrylic/ Divinylbenzene	300	1.2	490	60–66	Protein and enzyme extraction, peptide purification, hormone removal, vitamin recovery.
PUROSORB PAD950	Polymethacrylic	120	0.6	450	65–71	Juice debittering, anthocyanin extraction, removal of terpenes & carotenoids, curcumin purification.

Macronet Adsorbents

Product	Type	Volume Capacity (min.) (eq/l)	Typical Pore Diameter (Å)*	Typical Pore Volume (ml/g)*	Typical Surface Area (m²/dry g)*	Moisture Retention (%)	Remarks & Applications
MACRONET MN100	Weak Base Anion	0.1–0.3 (FB form)	650** 15***	0.4	1200	57–61 (Cl^- form)	Functionalized with 0.1 to 0.2 meq per ml of weak base functionality for easy regeneration with caustic. Decolorization & debittering of juices, beer and sweeteners, patulin removal.
MACRONET MN102	Weak Base Anion	0.1–0.3 (FB form)	350** 15***	0.4	800	50–60 (FB form)	
MACRONET MN200	Inert	—	700** 15***	0.4	1,100	57–61	Adsorption of pyridine & phenols, removal of benzene & pesticide, VOC extraction.
MACRONET MN202	Inert	—	220** 15***	0.3	950	50–60	
MACRONET MN270	Inert	—	80** 15***	0.5	1,100	35–50	Extraction of VOC & organic halides, size exclusion.
MACRONET MN502	Strong Acid Cation	0.7–0.9 (H^+ form)	650** 15***	0.3	660	55–60 (H^+ form)	Sulfonated to 0.8 meq per ml giving them the dual functionality of a strong acid cation in the H+ form. Taste & odor removal, pesticide removal.

* By nitrogen adsorption
** Meso/Macro/Transport Pores
*** Micropores

VOCs result from emissions from many industrial activities and contribute greatly to air pollution and harm to the ozone layer. Purolite adsorbent resins are a very effective way to control VOC emissions from hexane and other VOCs without the problems of combustion and pore blocking that arise from other technologies.

Styrenic resins can be used for removing a broad range of VOC concentrations in various temperatures.

Pharmaceutical Products

Purolite pharmaceutical resins are used in drug formulations as Active Pharmaceutical Ingredients (APIs) or excipients. They meet the demands of the American (USP), European (Ph.Eur.), British (BP) and Japanese (JP) pharmacopoeias. Drug Master Files are held for each, single, listed pharmaceutical product manufactured in Purolite's facilities.

All products are manufactured in our FDA-approved and cGMP-certified facilities.

Active Pharmaceutical Ingredients

Product	Type	Remarks & Applications
C100MRNS	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.
C100CaMRNS	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.

Excipients

Product	Type	Remarks & Applications
C115HMR	Polacrilex	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. Also suitable for taste masking for free base drugs.
C115KMR	Polacrilin Potassium	Weak acid cation resin in potassium form; purified, ground, dried and used as a tablet disintegrant. Also suitable for taste masking applications.

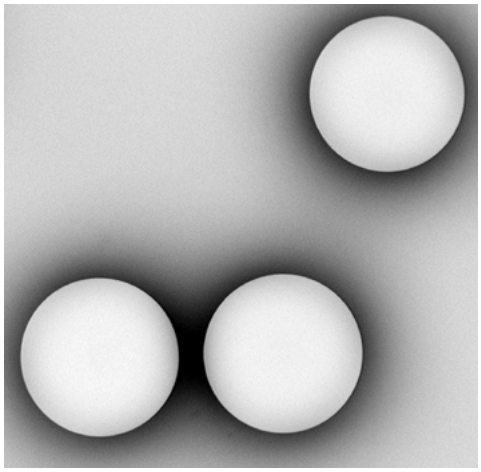
NOTE: Consult your local Purolite office for confirmation of regional, country or state regulatory compliance.
The manufacturing site is approved by the FDA and is cGMP certified.

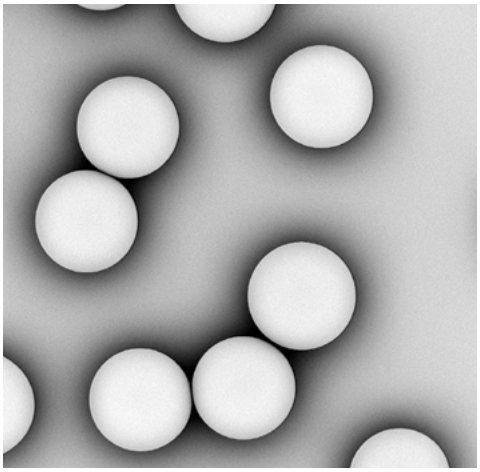
Purolite pharmaceutical resins are used in drug formulations as Active Pharmaceutical Ingredients (APIs) or excipients.

PuroMill™ Nanoparticle Milling Media

PuroMill advanced polymeric milling media reduces the particle size of compounds and molecules to the nanoscale, improving the overall characteristics of the formulation. The media is clean, safe and scalable to optimize milling processes, and is available in two purity grades, pharmaceutical and industrial. PuroMill low density polymeric media significantly reduces contamination due to extractables, leachables and attrition, while curtailing the risk of hydraulic packing. Use for high-shear milling with conventional or novel equipment for creating nanoparticles.

Product	Type	Particle Size Range (µm)	Remarks & Applications
PUROMILL PM3000	Gel Polystyrene	250–350	Inert copolymer, pharmaceutical grade. Applications include nanoparticle milling, preparation of ultra-fine nanoparticles, biological cell disruption, improve solubility of small molecules.
PUROMILL PM5000	Gel Polystyrene	450–550	
PUROMILL PM7000	Gel Polystyrene	650–750	





The smooth, non-porous, non-adsorptive micro surface of PuroMill™ minimizes contamination while the highly consistent, monodisperse particle size prevents screen binding and ensures reproducible milling performance.

Fine Mesh Products

Purolite offers fine mesh (FM) resin for water softening and extra fine (XF) resin for demineralizing and acid retardation. The advantage in using FM and XF mesh resin is its ability to produce higher operating capacities with better kinetics using a minimal amount of chemical and regenerant water.

FM resin can be used in water softeners that are fitted with finer slotted collectors and distributors; and backwash is modified.

XF resin can be used in shallow packed bed systems where backwash is eliminated and chemicals get to the resin quickly thereby saving on water.

Product	Type	Ionic Form	Total Volume Capacity (min.) (eq/l)	Particle Size Range (µm)	Moisture Retention (%)	Remarks & Applications
C100EFM	Gel Strong Acid Cation	Na^+	1.9	210–600	45–50	Fine mesh softening resin.
XFC1000	Gel Strong Acid Cation	Na^+	2.0	150–300	44–48	Shallow packed bed softening. Also available in H^+ form.
XFC1600	Macroporous Strong Acid Cation	Na^+	2.3	150–300	35–40	Shallow packed bed sodium form condensate polishing. Also available in H^+ form.
XFA5000	Type I Macroporous Strong Base Anion	Cl^-	1.15	150–425	57–63	Shallow packed bed acid retardation or demineralizing strong base anion.
XFA8000	Type I Gel Strong Base Anion	Cl^-	1.4	150–350	40–45	Shallow packed bed boron and/or arsenic removal or demineralizing strong base anion.

Purolite's FM resins can be used in water softeners that are fitted with finer slotted collectors and distributors; and backwash is modified.

Catalyst Products

Purolite manufacturers advanced polymeric resin catalysts for the petrochemical industry. Faster process times, better yields, and higher product purity may be obtained by using a properly designed and purified catalyst. Purolite polymeric catalyst resins are supplied either completely water-swollen or dried to specification. When selecting a catalyst resin, consideration factors include process parameters and requirements, catalyst type, dry weight capacity, porosity and swelling/shrinkage properties.

Product	Type	Functional Group	Ionic Form	Total Capacity, H^+ Form (min.) (eq/dry kg)	Moisture Retention, H^+ Form (%)	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	60–65	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, TAEE, 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, TAME and TAEE.
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 phenol purification, etherification and aromatic alkylation.
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 TAEE.

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

Purolite catalyst resins are used in the petrochemical industry for numerous applications including the synthesis of MTBE.

Inert / Spacer Resins

Product	Type	Specific Gravity	Particle Size Or Dimension (mm)	Remarks & Applications
IP1	Polyethylene	0.91–0.95	2.5–4.0	Floating inert polymer for Puropack systems with downflow service in droplets form.
IP3	Polyacrylate	1.12–1.16	0.63–0.85	White colored inert spacer for use in Trilite 3-component mixed beds.
IP4	Polypropylene	0.8–0.9	0.8–1.6	Floating inert polymer in the form of small cylinders for Puropack systems with upflow service.
IP7	Polyacrylate	1.12–1.16	0.63–0.85	Blue colored inert spacer for use in Trilite 3-component mixed beds.
IP9	HDPVC	1.3 (min.)	2–5.5	High density inert polymer for use as an underbed.

Special Products

Product	Type	Functional Group	Ionic Form	Total Capacity (min.) (eq/l)	Moisture Retention (%)	Remarks & Applications
A501P	Type I Macroporous Polystyrenic	Quaternary Ammonium	Cl^-	0.5	70–75	Specifically designed for the adsorption of colloidal particulate (silica, organic matter, metals, clays, etc.).
MPR1000	SBA Macroporous Polystryrenic/ Polyacrylic	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.
C150Ag	Macroporous Strong Acid Cation	Sulfonic	Na^+/Ag^+	1.8	48–53	Silver loaded resin used as bacteriostatic additive for softening resins.
HM10	Hydroponic Resin	Sulfonic/ Tertiary Amine	H^+/Free Base / Nutrients	—	—	For nutrient release for healthy growth and development of ornamental plants in hydroculture.
WCA100	Gel Weak Acid/Strong Base	Carboxylic Acid/ Quaternary Ammonium	Na^+/OH^-	0.9 (Na^+ form) & 0.9 (OH^- form) Amphoteric	57–62	Amphoteric resin containing balance of weakly acidic and strongly basic groups. Chromatographic applications like salt removal from caustic and sulfate removal from brine.
NRW100QR	Gel Strong Acid Cation	Sulfonic	H^+	1.7	53–57	Cation resin with indicator. On exhaustion, color changes from amber (regenerated form) to red (exhausted form). Widely used for cation conductivity measurement for monitoring condensate quality in power stations.

Special Products (Cont'd)

Product	Type	Functional Group	Ionic Form	Total Capacity (min.) (eq/l)	Moisture Retention (%)	Remarks & Applications
C100EVCH	Gel Strong Acid Cation	Sulfonic	H^+	1.9 (Na^+ form)	53–57 (H^+ form)	Cation resin with indicator. On exhaustion color changes from green (regenerated form) to blue (exhausted form).
A200MBOHIND	Type II Gel Strong Base Anion	Quaternary Ammonium	OH^-	1.3 (Cl^- form)	45–51 (Cl^- form)	High capacity Type II anion resin with indicator. Upon exhaustion color changes from blue (regenerated form) to amber (exhausted form). Used in HCl vent scrubbers and demineralization tank vents to stop CO_2 ingress.
CT275Ag	Macroporous Strong Acid Cation	Sulfonic	H^+/Ag^+	5.2 eq/kg (H^+ form)	54–59 (H^+ form)	Silver loaded resin for the removal of alkyl iodides (C_1 to C_{12} 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 (H^+ form)	—	Premium dry resin with optimized residual moisture for biodiesel purification for removal of glycerin, water and residual cations. Helps to produce biodiesel to international recognized standards.
OL100 PPOL100	Gel Strong Acid Cation	Sulfonic	Na^+	2.0 (Na^+ form)	44–48 (Na^+ form)	Specially activated resin for oil separation from water by coalescence. Primary application in deoiling of condensates.

Purolite inert/spacer resins are used to create a barrier in an ion exchange bed and keep the ion exchange beads exactly where they are supposed to be.

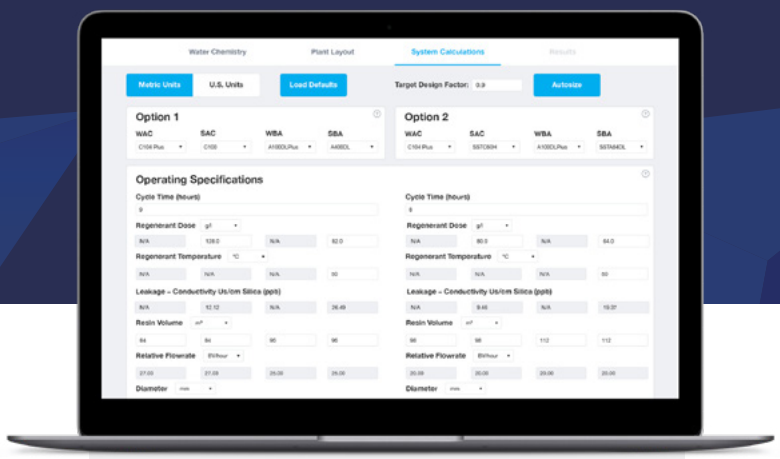
Abbreviations

API	Active Pharmaceutical Ingredient
BOD	Biological Oxygen Demand
BP	British Pharmacopoeias
BWR	Boiling Water Reactor
cGMP	Current Goods Manufacturing Practice
COD	Chemical Oxygen Demand
CVCS	Chemical and Volume Control System
DR	Dry
EDM	Electrical Discharge Machining
EDTA	Ethylenediaminetetraacetic Acid
ETBE	Ethyl Tert-Butyl Ether
FB	Free Base
FDA	Food and Drug Administration
FM	Fine Mesh
GMP	Good Manufacturing Practice
HMF	Hydroxymethylfurfural
IEX	Ion Exchange
ISL	In Situ Leaching
ISO	International Organization for Standardization
IWT	Industrial Water Treatment
JP	Japanese Pharmacopoeias
MB	Mixed Bed
MTBE	Methyl Tert-Butyl Ether
ND	Non-Detectable
NOM	Natural Organic Matter
NRW	Nuclear Grade
NSF	National Science Foundation
OSA	Osmotic Shock and Attrition
PCR	Chromatographic Separation Resins
PFA	Purofine® Anion
PFAS	Poly-and Perfluoroakyl Substances
PFC	Purofine® Cation
pH	Potential of Hydrogen
POE	Point of Entry
POU	Point of Use
PPA	Puropack® Anion
PPC	Puropack® Cation
RIP	Resin in Pulp
RO	Reverse Osmosis
SAC	Strong Acid Cation
SBA	Strong Base Anion
SDI	Silt Density Index
SST	Shallow Shell™ Technology
STD	Standard
TAEE	Tert-Amyl Ethyl Ether
TAME	Tert-Amyl Methyl Ether
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
UPW	Ultrapure Water
USP	U.S. Pharmacopoeia
VOC	Volatile Organic Compound
WAC	Weak Acid Cation
WBA	Weak Base Anion
XLC	Extra Low Chloride

Customized Resin Simulation at Your Fingertips

PRSM™
Purolite Resin System Modeling

PRSM is a free program that models all aspects of plant design associated with ion exchange resin performance and operation.



Plan your next ion exchange resin project with better accuracy and less effort through Purolite's Resin System Modeling platform (PRSM™). This powerful web application for resin plant simulation contains seven specific system modules that instantly consider hundreds of variables. Whether you are designing a new plant or modeling an existing plant, Purolite's expert engineers are giving you the access you need to get the results you can trust.

Key Insight Every Step of the Way

Predict

Calculate the effect of your site's unique variables

Compare

Side-by-side product and plant configuration performance evaluation

Optimize

Add operation and product cost analysis to better understand the value of product options

PRSM includes modules for water softening, demineralization, WAC softening, brine purification and modules for removal of nitrate, arsenic and boron. Features include.

Technical Help – Reach out directly to Purolite engineers for advice

Cloud Backup – Easy and secure retrieval of projects

Reporting – Print/save a pdf of the entire design including all engineering details

ROI Payback Calculations – Contrast performance vs. standard resins

Efficiency Evaluation – Compare operating costs of existing ion exchange plant vs. new design

Schedules – Obtain detailed regenerant schedules for cation and anion resins

Page, Topic and Calculation Help – View detailed notes and suggestions for the optimal design

Register today and get started at **www.purolite.com/PRSM**

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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.

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