



RESINTECH

INNOVATIONS IN ION EXCHANGE



TYPICAL PROPERTIES BULLETIN
ION EXCHANGE RESINS, ACTIVATED CARBON
& SPECIALTY ADSORBENTS



ION EXCHANGE RESIN TYPICAL PROPERTIES

CATION EXCHANGE RESINS

PRODUCT	TYPE	IONIC FORM	APPROX. SHIP WT lbs./cu. ft.	SCREEN SIZE US mesh percent	WATER RETENTION percent	TOTAL EXCHANGE CAPACITY meq/ml (Kgr./cu.ft.)	MAXIMUM OPERATING TEMP. Degrees F.	VOLUME CHANGE percent	REMARKS
CG8 CG8-BL	Strong Acid Gel 8% Crosslinked	Na	52	+16 <2 -50 <1	45-49	1.95 (42.6)	280	Na to H 5-9	Premium grade gel type strong acid cation resin suitable for softening, demineralization, dealkalization. Supplied in the hydrogen form as CG8-H. Available in black (BL) color for easy visual separation in mixed beds.
CG8-H CG8-H-BL	Strong Acid Gel 8% Crosslinked	H	50	+16 <2 -50 <1	49-54	1.85 (40.4)	265	—	
CG8-C	Strong Acid Gel 8% Crosslinked	Na	52	+16 <2 -45 <1	45-49	1.95 (42.6)	280	Na to H 5-9	CG8 cation resin with coarse bead size, intended for high flow rate applications. Available in amber or black (BL) color.
CG8-F	Strong Acid Gel 8% Crosslinked	Na	52	+16 <2 -50 <1	45-49	1.95 (42.6)	280	Na to H 5-9	CG8 cation resin with fine mesh size for softening and iron removal.
CGS CGS-BL	Strong Acid Gel	Na	51	+16 <2 -50 <1	49-53	1.9 (41.5)	280	Na to H 5-12	Cation softening resin for domestic softening. Specially processed to be completely free of color, taste and odor. Available in amber or black (BL) color.
CG10 CG-10-BL	Strong Acid Gel 10% Crosslinked	Na	54	+16 <2 -50 <1	40-45	2.2 (48.0)	280	Na to H 4-8	Premium grade 10% crosslinked gel type cation resin more resistant to oxidation than CG8. Excellent for high temperature applications, softening, dealkalization, deionization, etc. Particularly well suited for use in mixed beds. This resin is also supplied in the hydrogen form as CG10-H. Available in black (BL) color for easy visual separation in mixed beds.
CG10-H CG10-H-BL	Strong Acid Gel 10% Crosslinked	H	52	+16 <2 -50 <1	46-53	2.1 (45.9)	265	—	
SACMP	Strong Acid Macroporous	Na	50	+16 <2 -50 <1	47-52	1.70 (37.2)	300	Ca or Na to H 4-7	Macroporous structure and high level of crosslinkage gives this strong acid cation resin the best resistance to oxidative, thermal and osmotic stresses. This resin is also supplied in the hydrogen form as SACMP-H.
SACMP-H	Strong Acid Macroporous	H	48	+16 <2 -50 <1	50-56	1.6 (35.0)	300	—	
WACG	Weak Acid (Carboxylic)	H	47	+16 <2 -50 <1	42-49	4.0 (87.4)	300	H to Na 100	This gel type weak acid cation resin has nearly 100% regeneration efficiency and super high total capacity, over 85 kilograins/cu.ft. Useful in dealkalization and chemical processing applications. This resin is also available in the sodium form for use in high TDS softening applications.
WACG-Na	Weak Acid (Carboxylic)	Na	50	+16 <2 -50 <1	approx. 75	2.6 (43.7)	300	—	
WACMP	Weak Acid (Carboxylic)	H	47	+16 <2 -50 <1	53-58	3.8 (83.0)	250	H to Ca 27	High capacity macroporous weak acid cation resin with nearly 100% regeneration efficiency for dealkalization, deionization, etc., with improved physical stability. This resin is also available in the sodium form for use in high TDS softening applications.
WACMP-Na	Weak Acid (Carboxylic)	Na	50	+16 <2 -50 <1	approx. 75	2.1 (45.9)	250	H to Na 80	
WACMA	Weak Acid (Methacrylic)	H	41	+16 <2 -50 <1	43-53	3.9 (85.2)	250	—	Recommended for industrial and domestic softening. Has lower ph than WACMP and WACG.
WACMA-Na	Weak Acid (Methacrylic)	Na	43	+16 <2 -50 <1	approx. 67	2.5 (54.6)	250	H to Na 75-100	Product purification, buffering etc.

ANION EXCHANGE RESINS

PRODUCT	TYPE	IONIC FORM	APPROX. SHIP WT lbs./cu.ft.	SCREEN SIZE US mesh percent	WATER RETENTION percent	TOTAL EXCHANGE CAPACITY meq/ml (Kgr./cu.ft.)	MAXIMUM OPERATING TEMP. Degrees F.	VOLUME CHANGE percent	REMARKS
SBG1	Strong Base Gel Type 1	Cl	44	+16 <2 -50 <1	43-47	1.45 (31.7)	170	Cl to OH 18-22	Standard gel Type 1 anion resin for use in condensate deionization and single use mixed beds. Has highest total capacity of Type 1 gel anion resins. Superior physical strength and resistance to oxidation.
SBG1-OH	Strong Base Gel Type 1	OH	42	+16 <2 -50 <1	53-60	1.2 (26.2)	140	—	Standard gel Type 1 anion resin supplied in the OH form for use in condensate deionization or single use mixed beds (radwaste), cartridges or single use separate beds (anion complexed metals).
SBG1P	Strong Base Gel Type 1 Porous	Cl	43	+16 <2 -50 <1	51-57	1.25 (27.3)	170	Cl to OH 20-27	Porous gel Type 1 anion resin, superior kinetics to SBG1, for use in deionization and mixed beds. Has the highest regenerable operating capacity of the Type 1 anion resins. Especially recommended for regenerable systems. Good resistance to organic fouling.
SBG1P-OH	Strong Base Gel Type 1 Porous	OH	41	+16 <2 -50 <1	65-70	1.0 (21.9)	140	—	
SBG2	Strong Base Gel Type 2	Cl	44	+16 <2 -50 <1	38-44	1.45 (31.7)	170	Cl to OH 10-15	Standard gel Type 2 anion resin, featuring very high capacity and regeneration efficiency. Greater resistance to organics than Type 1 resins. Excellent for two bed service. Its good regeneration efficiency and high capacity can help minimize caustic consumption and save on operating costs
SBG2-OH	Strong Base Gel Type 2	OH	42	+16 <2 -50 <1	43-50	1.3 (28.4)	95	—	
SBMP1	Strong Base Gel Type 1 Macro	Cl	42	+16 <2 -50 <1	50-60	1.15 (25.1)	170	Cl to OH 15-20	Type 1 macroporous anion resin featuring high exchange capacity, porous gel matrix and superior elution of large organic molecules. Also offered in hydroxide form for immediate use.
SBMP1-OH	Strong Base Gel Type 1 Macro	OH	40	+16 <2 -50 <1	64-73	.95 (20.8)	140	—	
SBMP2	Strong Base Gel Type 2 Macro	Cl	43	+16 <2 -50 <1	52-58	1.2 (26.2)	170	Cl to OH 10-15	Type 2 macroporous anion resin featuring high exchange capacity and superior elution of large organic molecules. Suitable for high salt content waters. Also offered in hydroxide form for immediate use.
SBMP2-OH	Strong Base Gel Type 2 Macro	OH	41	+16 <2 -50 <1	62-71	1.0 (21.9)	140	—	
SBACR	Strong Base Gel (Acrylic)	Cl	45	+16 <2 -50 <1	57-62	1.2 (26.2)	95	Cl to OH 10-15	Acrylic structure allows greater operating capacity and fouling resistance in applications with a high level of organics. This resin should not be used when service water temp exceeds 85 degrees F.
SBACR-MP	Strong Base Gel (Acrylic)	Cl FB	43	+16 <2 -50 <1	57-63	1.4 (30.6)	95	—	Macroporous acrylic resin containing a mixture of strongly basic and weakly basic exchange groups. High total capacity and resistance to organic fouling.
WBG30	Weak Base (Epoxy Polyamine)	Cl FB	38	+16 <2 -50 <1	52-62	3.0 (65.6)	110	FB to Cl 5	High capacity macroporous weak acid cation resin with nearly 100% regeneration efficiency for dealkalization, deionization, etc., with improved physical stability. This resin is also available in the sodium form for use in high TDS softening applications.
WBMP	Weak Base Macroporous	Free Base	40	+16 <2 -50 <1	48-54	1.6 (35.0)	212	FB to Cl 10-15	High capacity granular intermediate base resin for use in applications requiring extremely high throughput capacity or nearly 100 percent regeneration efficiency.
WBACR	Weak Base (Acrylic)	Free Base	44	+16 <2 -50 <1	60-65	1.7 (37.2)	250	FB to Cl 10-15	Weakly basic acrylic resin with high total capacity, throughput capacity and regeneration efficiency. Organic substances sorbed during service are easily removed during regeneration.

NUCLEAR GRADE, SEMICONDUCTOR GRADE AND LOW TOC RESINS

PRODUCT*	TYPE	IONIC FORM	APPROX. SHIP WT lbs./cu.ft.	SCREEN SIZE US mesh percent	WATER RETENTION percent	TOTAL EXCHANGE CAPACITY meq/ml (Kgr./cu.ft.)	MAXIMUM OPERATING TEMP. Degrees F.	SWELLING (%) BASED ON COMPLETE CONVERSION	REMARKS
CG8-H CG8-H-BL	Strong Acid Gel 8% Crosslinked	H	50	+16 <2 -50 <1	49-54	1.85 (40.4)	265	Na to H 5-9	CG8 cation resin with high conversion to the hydrogen form, specially processed to reduce TOC throw. Available in amber or black (BL) color.
CG10-H CG10-H-BL	Strong Acid Gel 10% Crosslinked	H	52	+16 <2 -50 <1	46-53	2.1 (45.9)	265	Na to H 5-9	CG10 cation resin, with high conversion to the hydrogen form, specially processed to reduce TOC throw. Available in amber or black (BL) color.
SBG1-OH	Strong Base Gel Type 1	OH	41	+16 <2 -50 <1	53-60	1.2 (26.2)	140	Cl to OH 18-22	Standard Type 1 anion resin with high degree of conversion to the hydroxide form, specially processed to reduce TOC throw.
SBG1P-OH	Strong Base Gel Type 1 Porous	OH	40	+16 <2 -50 <1	65-70	1.0 (21.9)	140	Cl to OH 20-27	Type 1 porous anion resin with high degree of conversion to the hydroxide form, specially processed to reduce TOC throw.
SBG2-OH (NG only)	Strong Base Gel Type 2	OH	43	+16 <2 -50 <1	43-50	1.3 (28.4)	95	Cl to OH 10-15	Type 2 anion resin with high degree of conversion to the hydroxide form, specially processed to reduce amine odor and retain a light amber color throughout its life.
SBMP1-OH	Strong Base Gel Type 1 Macro	OH	40	+16 <2 -50 <1	64-73	.95 (20.8)	140	Cl to OH 15-20	Type 1 macroporous resin with high degree of conversion to the hydroxide form, specially processed to reduce TOC throw

MIXED BED RESINS (NG, SC AND LTOC GRADES)

PRODUCT	TYPE	IONIC FORM	APPROX. SHIP WT lbs./cu. ft.	SCREEN SIZE US mesh percent	WATER RETENTION percent	TOTAL EXCHANGE CAPACITY meq/ml (Kgr./cu.ft.)	MAXIMUM OPERATING TEMP. Degrees F.	SWELLING (%) BASED ON COMPLETE CONVERSION	REMARKS
MBD-10	Strong Acid Gel Strong Base Gel (Type 1)	H/OH	43	+16 <2 -50 <1	60 max	.68 (15)	140	Na/Cl to H/OH 15-17	Mixed bed of highly regenerated hydrogen form cation and hydroxide form standard Type 1 anion resin. Low TOC throw. High capacity is particularly useful for disposable cartridges and single use applications.
MBD-12 (NG only)	Strong Acid Gel Strong Base Gel (Type 1 Porous)	H/OH	43	+16 <2 -50 <1	60 max	.60 (13)	140	Na/Cl to H/OH 18-20	Mixed bed resin that changes color as it exhausts. Cation resin component is dyed. Great for cartridge applications where visual determination of exhaustion is needed.
MBD-15	Strong Acid Gel Strong Base Gel (Type 1 Porous)	H/OH	43	+16 <2 -50 <1	60 max	.60 (13)	140	Na/Cl to H/OH 18-20	Mixed bed of highly regenerated hydrogen form and hydroxide form porous Type 1 anion resin. Specially processed to minimize TOC throw. Best choice for regenerable applications and ultrapure water.
MBD-16	Strong Acid Gel Strong Base Gel (Type 1 Porous)	H/OH	43	+16 <2 -50 <1	60 max	.60 (13)	140	Na/Cl to H/OH 18-20	Mixed bed of highly regenerated hydrogen form 10 percent crosslinked cation and hydroxide form porous Type 1 anion resin. Specially processed to minimize TOC throw. Best choice for regenerable applications. Gives great backwash separation.
MBD-20 (NG only)	Strong Acid Gel Strong Base Gel (Type 2)	H/OH	43	+16 <2 -50 <1	60 max	.80 (17.4)	95	Na/Cl to H/OH 9-11	Mixed bed of highly regenerated hydrogen form cation and hydroxide form Type 2 anion resin. Low amine throw. Very high operating capacity.
MBD-30 (NG only)	Strong Acid Gel Strong Base Gel (Type 1)	H/OH	43	+16 <2 -50 <1	60 max	.60 (13)	140	Na/Cl to H/OH 18-20	Mixed bed resin that changes color as it exhausts. Anion resin component is dyed. Great for cartridge applications where visual determination of exhaustion is needed.

*NOTE: Nuclear grade products are designated by NG suffix, semiconductor grade products by SC suffix and Low TOC products by LTOC suffix.
 All nuclear grade mixed beds are tested to 15 megohm resistivity.
 All semiconductor grade mixed beds are tested to 18 megohm resistivity.
 All products available as nuclear grade, semiconductor grade or low TOC grade unless otherwise indicated.

MIXED BED RESINS (ULTRA GRADES)

PRODUCT	TYPE	IONIC FORM	APPROX. SHIP WT lbs./cu. ft.	SCREEN SIZE US mesh percent	WATER RETENTION percent	TOTAL EXCHANGE CAPACITY meq/ml (Kgr./cu.ft.)	MAXIMUM OPERATING TEMP. Degrees F.	SWELLING (%) BASED ON COMPLETE CONVERSION	REMARKS
MBD-10 Ultra	Strong Acid Gel Strong Base Gel Type 1	H/OH	43	+16 <5 -45 <1	(H) 45-50 (OH) 65-75	.60 (13)	160	Na/Cl to H/OH 15-17	High-capacity ultra-pure mixed bed intended for the most stringent applications. Produces 18+ megohm water quality and less than 1 ppb of leachable TOC. Standard ratio is 60% anion and 40% cation based on the regenerated form (approx. 1:1 equivalent ratio).
MBD-15 Ultra (gaussian)	Strong Acid Gel Strong Base Gel Type 1 Porous	H/OH	43	+16 <5 -45 <1	(H) 45-50 (OH) 65-75	.55 (12)	140	Na/Cl to H/OH 18-20	Ultra-pure mixed bed intended for the most stringent semiconductor applications. Produces 18+ megohm water quality and less than 2 ppb of leachable TOC. Standard ratio is 60% anion and 40% cation based on the exhausted form (approx. 1:1 equivalent ratio).
MBD-15 Ultra (Narrow Range)	Strong Acid Gel Strong Base Gel Type 1 Porous	H/OH	43	C+16 <5 C-35 <1 A+20 <5 A-40 <1	(H) 45-50 (OH) 65-75	.55 (12)	140	Na/Cl to H/OH 18-20	Ultra-pure mixed bed intended for the most stringent semiconductor applications. Produces 18+ megohm water quality and less than 2 ppb of leachable TOC. Supplied in narrow particle size range for optimum separation. Ratio is 60% anion and 40% cation based on the exhausted form (approx. 1:1 equivalent ratio).

SPECIALTY GRADE RESINS

PRODUCT	TYPE	IONIC FORM	APPROX. SHIP WT lbs./cu. ft.	SCREEN SIZE US mesh percent	WATER RETENTION percent	TOTAL EXCHANGE CAPACITY meq/ml (Kgr./cu.ft.)	MAXIMUM OPERATING TEMP. Degrees F.	SWELLING (%) BASED ON COMPLETE CONVERSION	REMARKS
CG8-H-ID	Strong Acid 8% Crosslinked	H	50	+16 <2 50 <1	49-54	1.85 (40.4)	265	Na to H 5-7	Hydrogen form cation resin with indicator dye that changes color upon exhaustion. Suitable for use in cartridges.
SIR-22P-HP	Strong Base Gel Type 1	Cl	41	+20 <2 -40 <1	70-80	—	170 Cl Cycle	—	Extremely high porosity gel Type I anion resin for chloride cycle organic scavenging and color removal. Reduced bead size provides fast kinetics. Specially treated to eliminate taste, odor and color throw.
SIR-100-HP	Strong Base Gel (Triethylamine)	Cl	42	+16 <2 -50 <1	50-65	1.0 (24.0)	170 Cl Cycle	Cl to OH 10	Highly selective for nitrates. Meets all major European specifications for potable water applications. Specially treated to eliminate taste, odor and color throw.
SIR-150	n-methyl (Glucamine)	Free base	40	+16 <2 -50 <1	50-55	0.9 (20.0)	212	10-15	Special weak base anion resin with very high selectivity for borate ions.
SIR-200	Thiol Functionality	H	45	+16 <2 -50 <1	45-50	1.2 (26.2)	160	—	Chelating resin specific for mercury removal.
SIR-300	Iminodiacetate Functionality	Na	43	+16 <2 -50 <1	55-60	1.0 (21.9)	212	H to Na Approx. 40	Chelating resin specific for heavy metals removal.
SIR-400	Thiouonium Functionality	H+	47	+16 <2 -50 <1	45-50	2.0 (43.6)	175	—	Chelating resin specific for precious metals removal
SIR-500	Aminophosphonic Functionality	Na	45	+16 <2 -50 <1	65-70	1.1 (24.0)	185	H to Na Approx. 35	Chelating resin for removal of hardness from brine.
SIR-600	Processed Zeolite	Na	66	+16 <5 -50 <5	N.A.	1.6 (34.9)	212	—	Cesium specific zeolite. Also effective for ammonia removal.
SIR-700	Weak Base Granular	SO ₄	40	+16 <2 -50 <1	50	2.2 (48.1)	170	FB to SO ₄ Approx. 10	Chromate selective media with up to 7 lb. Cr./cu.ft. capacity for chromate under slightly acidic conditions.
SIR-800	Strong Base Anion	SO ₃	44	+16 <2 -50 <1	40-44	1.0 (21.9)	170	—	Oxygen scavenger resin with sulfite functionality.
SIR-900	Processed Zeolite	—	42	+12 <2 -30 <1	<10	—	212	—	Adsorbent media selective for arsenic, fluoride and lead.

TRIBED RESINS

PRODUCT	TYPE	IONIC FORM	APPROX. SHIP WT lbs./cu. ft.	SCREEN SIZE US mesh percent	WATER RETENTION percent	TOTAL EXCHANGE CAPACITY meq/ml (Kgr./cu.ft.)	MAXIMUM OPERATING TEMP. Degrees F.	SWELLING (%) BASED ON COMPLETE CONVERSION	REMARKS
SACMP-TR	Strong Acid Macroporous	Na	48	+20 <5 -30 <2	47-52	1.70 (37.2)	300	Na to H 5-7	Special particle size resin designed for optimum separation from TRIBED anion resin.
SBMP1-TR	Strong Base Type 1 Macro	Cl	41	+25 <5 -40 <2	50-60	1.15 (25.1)	170	Cl to OH 15-20	Special particle size resin designed for optimum separation from TRIBED cation resin.
IT-1	Inert	—	45	+20 <1 -40 <3	<6	—	212	—	Used in middle layer between SACMP-TR and SBMP1-TR in TRIBED system.
IT-5	Inert	—	33	+8 <2 -12 <1	<1	—	212	—	Specially sized inert granular media, used as top layer in counterflow packed bed units. Specific gravity approx. 0.9.

ACTIVATED GRANULAR CARBON

PRODUCT	TYPE	IONIC FORM	APPROX. SHIP WT lbs./cu. ft.	SCREEN SIZE US mesh percent	WATER RETENTION percent	TOTAL EXCHANGE CAPACITY meq/ml (Kgr./cu.ft.)	MAXIMUM OPERATING TEMP. Degrees F.	SWELLING (%) BASED ON COMPLETE CONVERSION	REMARKS
AGC-30 (Std. A, AD, AW)	Granular Activated carbon	Na	Dry-28 Wet-38	+8 <15 -30 <5	Dry <5 Wet 30-40	Min 900 Iodine No.	250	None	General-purpose coal based granular activated carbon. Coarse grade for lowest pressure loss and minimum fines. Available as dry or pre-moistened (dust free) and as standard or acid washed.
AGC-40 (Std. A, AD, AW)	Granular Activated carbon	Na	Dry-28 Wet-38	+12 <5 -40 <5	Dry <5 Wet 30-40	Min 900 Iodine No.	250	None	General-purpose coal-based granular activated carbon. Standard grade for low pressure and minimum fines. Available as dry or pre-moistened (dust free) and as standard or acid washed.
AGC-50 (Std. A, AD, AW)	Granular Activated carbon	Na	Dry-28 Wet-38	+20 <5 -50 <5	Dry <5 Wet 30-40	Min 950 Iodine No.	250	None	General-purpose coal-based granular activated carbon. Fine grade for highest surface activity. Available as dry or pre-moistened (dust free) and as standard or acid washed.
AGC-MG	Medical Grade Granular Activated carbon	Na	Wet-38	+12<5 -40 <5	Wet 30-40	Min 1000 Iodine No.	250	None	Highly purified coal-based granular activated carbon. Medical grade carbon is acid washed and tested to ensure low levels of metallic impurities and has high catalytic activity for superior removal of chloramines.
AGC-PG	Granular Activated carbon	Na	Wet-38	+12 <5 -40 <5	Wet 30-40	Min 1000 Iodine No.	250	None	Special acid-washed carbon for electroplating baths. Plating grade carbon is specially prepared to have low fines and high activity for optimum removal of brighteners, and other organic contaminants, from plating baths.



INNOVATIONS IN ION EXCHANGE

1 ResinTech Plaza • 160 Cooper Road • West Berlin, NJ 08091-9243 USA • Phone: 856-768-9600 • Fax: 856-768-9601

Web: www.resintech.com • Email: ixresin@resintech.com