PUROLITE®
ION EXCHANGE RESINS

ISO 9002
BSI
REGISTERED FIRM
FM 40352

SST-60

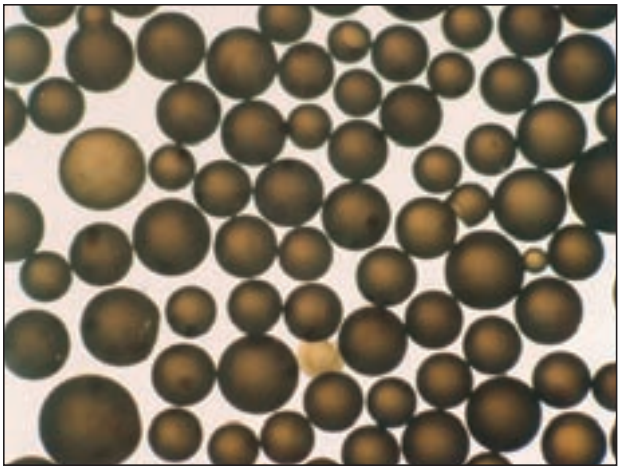
Salt Saving Technology Softening Resin

Technical Data

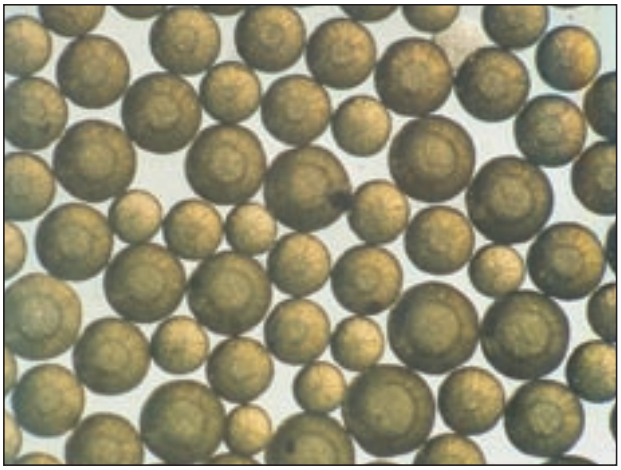
PRODUCT DESCRIPTION

The **Purolite SST** family of high efficiency softening resins is based on shallow shell technology. Simply stated, the shorter the diffusion path, the more rapid the softening exchange occurs. This is particularly important during regeneration. Reducing the depth of penetration required to cleanse the resin allows for a more complete regeneration and provides a higher, more efficient utilization of the regenerant. The result is a group of resins with unsurpassed salt efficiency, lower leakage, and reduced rinse water requirements. When compared to conventional softening resins, regenerant reductions of 2 to 4 lbs. per cubic foot of resin per regeneration is possible without sacrificing capacity or increasing leakages. This translates to a salt savings of 700 to 1,400 lbs. per cubic foot per year based on daily regenerations.

Typical Physical & Chemical Characteristics	
Polymer Matrix Structure	Polystyrene crosslinked with Divinylbenzene
Physical Form and Appearance	Clear Spherical beads
Whole Bead Count Functional Groups	90% min.
Functional Groups	Polystyrene sulphonate
Ionic Form, as shipped	Na^+
% Moisture	33 - 45
Crush Strength	> 1500 gm/bead (chatillon)
Shipping weight (approx.)	50 lb/ft^3
Particle Size	+1.2 mm < 5%, -0.3 mm < 1%
pH Limits	0 - 14
Specific Gravity, Na^+ Form	1.20



PUROLITE C-100 Standard Resin



PUROLITE SST-60 Resin

Under a microscope, **PUROLITE SST** resins look different than other resins. That's because the resins have inert centers. Only the outer shell is functionalized. (See Figure 1)

By shortening the diffusion path (See Figure 2) through the use of shallow shell technology, each resin bead presents the same depth of functionality which leads to more efficient use of regenerant and therefore, better regeneration. This in turn leads to higher capacities, lower leakages and better handling of iron.

PUROLITE SST resins exhibit superior toughness and durability of osmotic shock versus conventional resins. This is key in industrial applications and portable exchange units where the resin sees a lot of physical handling. These resins save water too. The shallow shell technology of **PUROLITE SST** products regenerate with about 50% less water and rinse very quickly to quality.

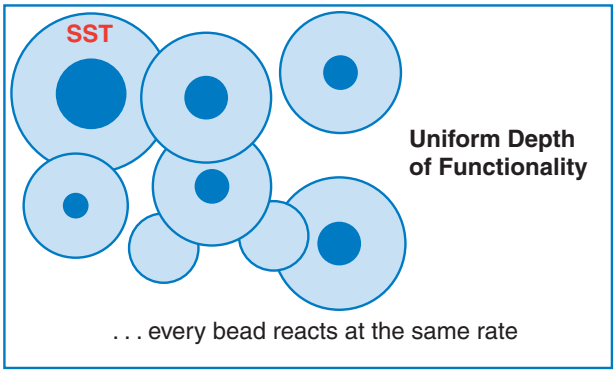
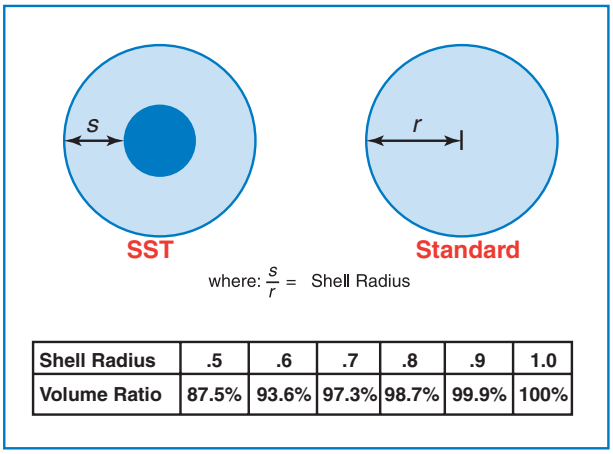


Fig. 1 Uniform Depth of Functionality



Shell Radius	.5	.6	.7	.8	.9	1.0
Volume Ratio	87.5%	93.6%	97.3%	98.7%	99.9%	100%

Fig. 2 Diffusion Path

SST-60 ADVANTAGES

- Higher Recovered Capacity Per Pound of Salt
- Lower Leakages at All Regenerant Levels
- Better Iron Removal
- Lower Rinse Requirements
- No equipment Modifications Needed
- Less Susceptible to Iron Fouling
- Shorter Regeneration Cycles
- Superior Physical Strength
- More Resistant to Oxidation
- Non-Solvent Sulfonated

Standard Operating Conditions
(Co-current Softening of Water)

Operation	Rate	Solution	Minutes	Amount
Service	8 - 60 BV/h 1.0 - 7.5 gpm/ft³	Influent water	per design	per design
Backwash	Refer to Fig. 4	Influent water 5° - 30°C (40° - 80°F)	5 - 20	1.5 - 4 BV 10 - 20 gal/ft³
Regeneration	2 - 7 BV/h 0.25 - 0.9 gpm/ft³	8 - 20% NaCl	10	32 - 340 g/l 2 - 15 lb/ft³
Rinse, (slow)	2 - 7 BV/h 0.25 - 0.90 gpm/ft³	Influent water	12 - 60	1.5 - 2 BV 10 - 15 gal/ft³
Rinse, (fast)	8 - 40 BV/h 1.0 - 5.0 gpm/ft³	Influent water	6 - 30	1 - 5 BV 8 - 40 gal/ft³

Backwash Expansion 50% to 75%

Design Rising Space 100%

"Gallons" refer to U.S. Gallon = 3.785 liters

Fig. 3 PRESSURE DROP VS FLOW RATE

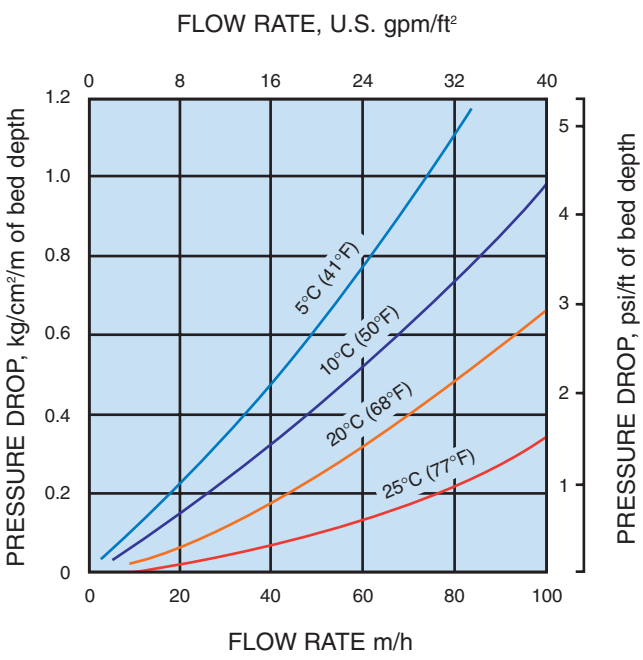
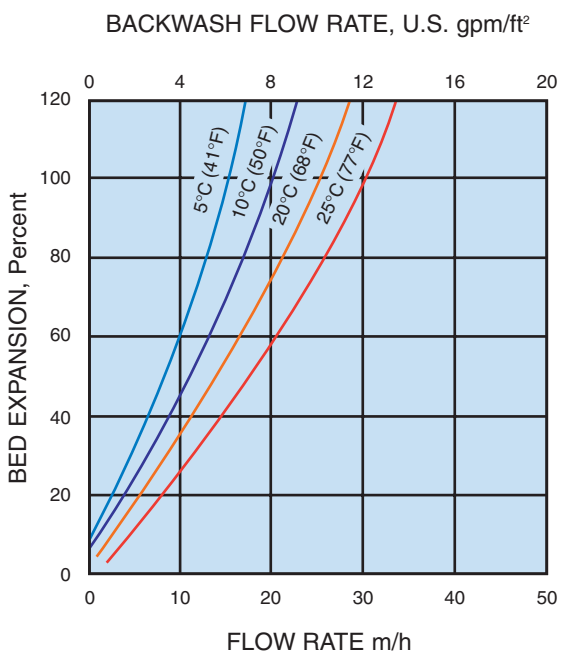
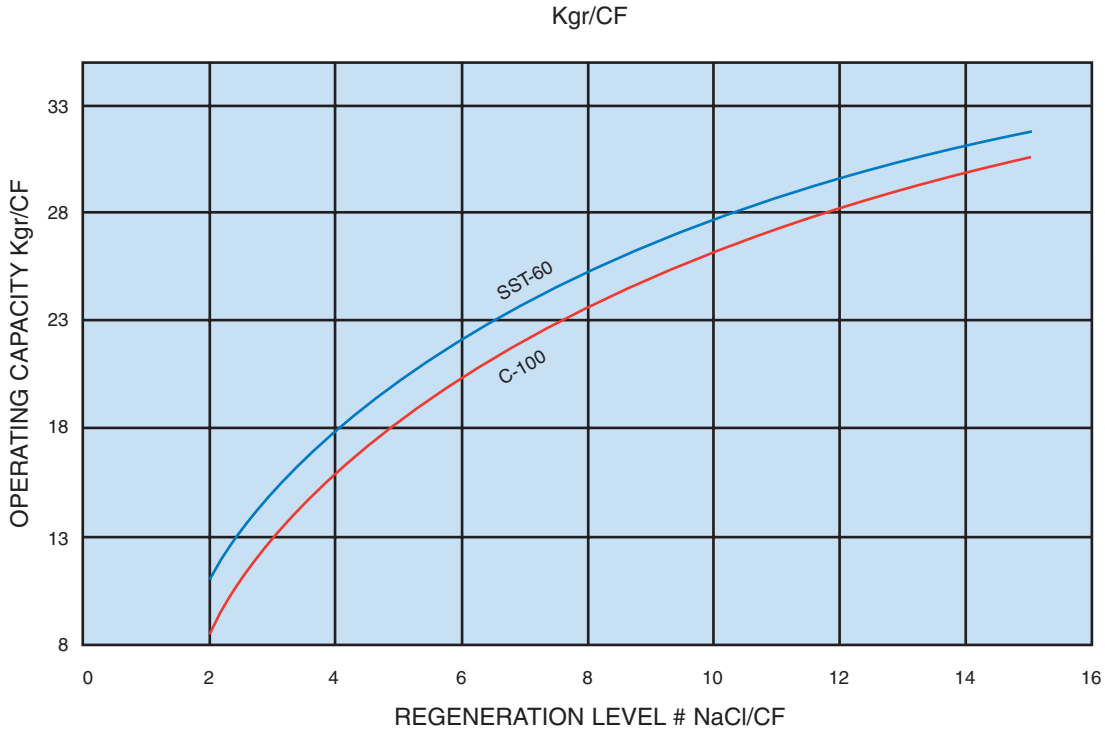


Fig. 4 BACKWASH EXPANSION



PUROLITE SST-60 vs C-100
CAPACITY

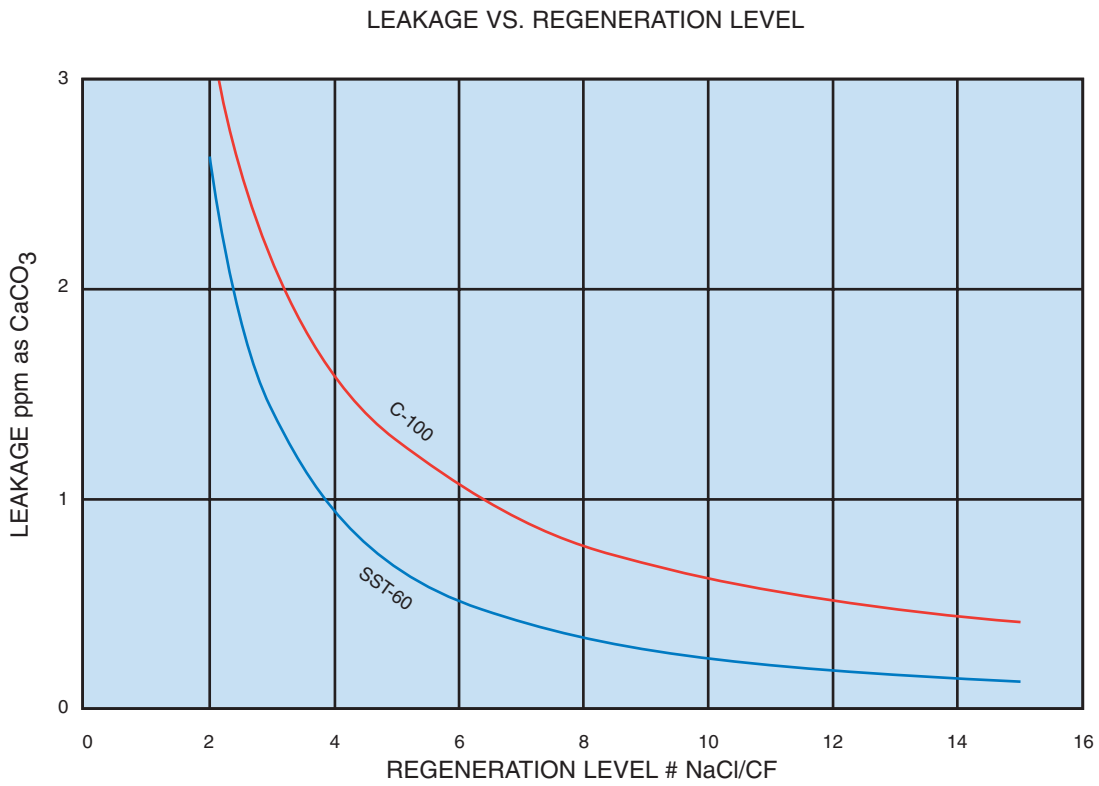
Fig. 5 OPERATING CAPACITY



NaCl (#/CF)	SST-60 Op. Cap (Kgr/CF)	C-100 Op. Cap (Kgr/CF)
2	11.2	9.2
3	14.8	12.8
4	18.0	15.2
5	20.0	18.2
6	22.5	19.5
7	24.5	22.3
8	25.0	24.3
9	26.2	25.6
10	27.4	26.9
12	30.0	28.5
15	31.1	29.4

PUROLITE SST-60 vs C-100
LEAKAGE

Fig. 6 LEAKAGE VS. REGENERATION LEVEL



NaCl (#/CF)	SST-60 Leakage (ppm)	C-100 Leakage (ppm)
2	2.1	3.7
3	1.3	2.1
4	0.9	1.4
5	0.7	1.2
6	0.6	1.1
7	0.5	0.9
8	0.4	0.8
9	0.35	0.7
10	0.3	0.6
12	0.2	0.5
15	0.1	0.4

Fig. 7 SOFTENING CO-FLOW

CAPACITY CORRECTION FOR SODIUM

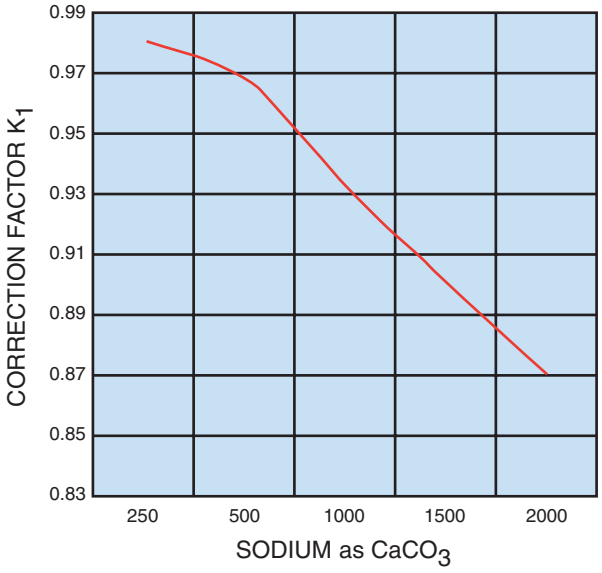


Fig. 8 SOFTENING CO-FLOW

CAPACITY CORRECTION FOR TOTAL HARDNESS

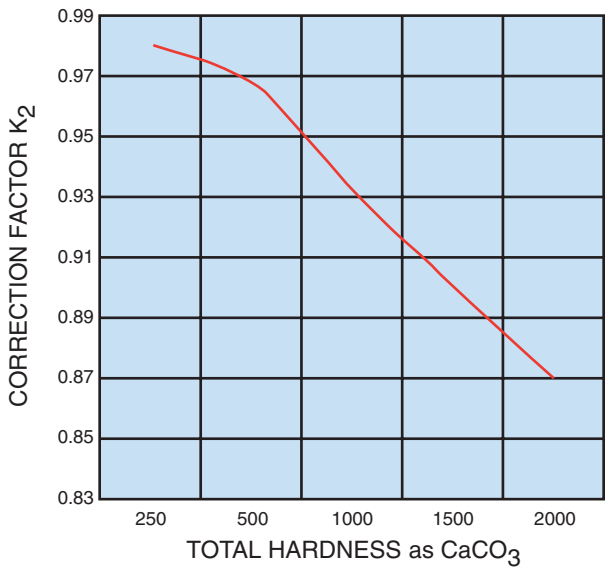


Fig. 9 SOFTENING CO-FLOW

CAPACITY CORRECTION FOR FLOW RATE

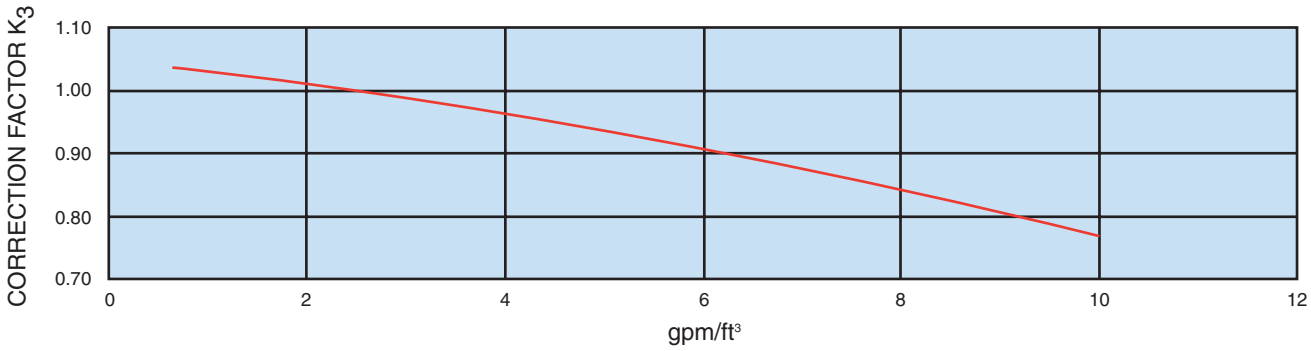


Fig. 10 SOFTENING CO-FLOW

LEAKAGE CORRECTION FOR TDS