



Case History

SST-60 SHALLOW SHELL STRONG ACID CATION RESIN

CASCO Inc, Port Colborne ON has a 350-gpm co-current softener with 225 ft³ SAC resin. The feed water, expressed in “ppm as CaCO₃” contains hardness @ 128 ppm, and TDS @ 210 ppm. The original resin, Purolite C-100E, regeneration specifications called for 10 lb/ft³ of NaCl resulting in an operating capacity of 26.4 Kgr/ft³ and average total hardness leakage of 1 ppm.

Original Regen steps		
Step	Time	Gallons
Backwash	20	6800
Settling	2	
Brine Injection	20	2640
Displacement	36	3312
Fast rinse	75	42525

In February 1999, the softener was recharged with [SST-60](#) with the intention of reducing operating cost and improving regeneration efficiency.

One of the first areas of improvement was the reduction in time and volume of the fast rinse step. After the first 10 regenerations, the SST-60 reached specification hardness leakage within 10 minutes as opposed to 75 minutes for the old SAC resin.

The salt dosage was lowered to 6lb/ft³ resulting in a capacity for SST-60 of 24 Kgr/ft³ and a leakage of 1 ppm.

SST-60 Regen steps		
Step	Time	Gallons
Backwash	15	5100
Settling	2	
Brine Injection	11	1452
Displacement	36	3312
Fast rinse	15	8505

Operating cost;

Cost of NaCl = \$0.10/lb

Cost of water = \$4.00/1000 gal

STD SAC water for regen = 50 gallons/ ft³.

[SST-60 water for regen = 35 gallons/ ft³.](#)

The annual cost for NaCl and water to regenerate the standard SAC resin was \$98,550.

The yearly NaCl and water cost to regenerate [SST-60](#) resin was \$60772. [Annual savings by using SST-60 was \\$37,777.](#)

[SST-60 saves the plant \\$168/cubic foot annually for reduced chemical and water use.](#)