OPERATING CAPACITY

The operating capacity of Auchlite A 102 D is obtained by multiplying the basic capacity value from Table 6 by the correction factor D to G from Tables 7 to 10.

$$Cap = Cap_O \times D \times E \times F \times G$$

TABLE 6 : Basic Capacity versus NaOH regenerant level (counter current regeneration)

NaOH g/L	Capacity eq/L (Cap_O)
30	0.65
40	0.82
50	0.92
60	0.98
70	1.04
80	1.06

TABLE 7 : Capacity Correction Factor D versus Sulphate to Total Anions Ratio.

SO_4 %	Factor D
0	0.94
25	0.97
50	1.00
75	1.03
99	1.06

TABLE 8 : Capacity Correction Factor E versus Carbon Dioxide to Total Anions Ratio.

CO_2 %	Factor E
0	0.97
20	1.00
30	1.02
50	1.05
75	1.08
99	1.12

TABLE 9 : Capacity Correction Factor F versus Silica to Total Anions Ratio and NaOH Temperature(°C)

	5	10	20	30% SiO_2
5°C	0.96	0.93	0.87	0.83
10	0.97	0.94	0.89	0.85
15	0.98	0.95	0.91	0.87
20	0.99	0.96	0.92	0.89
25	1.00	0.98	0.94	0.90
30	1.01	0.99	0.93	0.92

TABLE 1 0 : Capacity Correction Factor G versus Silica Endpoint (ΔSiO_2 = difference between average leakage and endpoint)

ΔSiO_2 (ppb)	Factor G
50	0.90
100	0.95
200	1.00
300	1.04

SAFE USE INFORMATION

A Material Safety Data Sheet is available for each product. To obtain a copy contact your Auchtel representative.

CAUTION

Acid and basic regenerant solutions are corrosive and should be handled in a manner that will prevent eye and skin contact. Nitric acid and other strong oxidizing agents can cause explosive type reactions when mixed with Ion Exchange Resins. Proper design of process equipment to prevent rapid bildup of pressure is necessary if use of an oxidizing agent, such as nitric acid is contemplated. Before using strong oxidizing agents in contact with Ion Exchange Resins, consult sources knowledgeable in the handling of these materials.

Auchtel ProductsLtd.,142 C,Victor House, N.M.Joshi Marg, Lower Parel(w),Mumbai-400 013

Tel. 91-22-493 3975, Fax. 91-22-493 9755, 497 4211 E-mail -auchtel@vsnl.com

SEPARATION TECHNOLOGIES

ION EXCHANGE RESINS

AUCHLITE A 102 D

ENGINEERING DATA SHEET
(COUNTER CURRENT REGENERATION)

Auchtel

Auchlite A 102 D is a type 2 strong base Anion Exchange Resin. These data provide information to calculate the silica leakage and operating capacity of Auchlite A 102 D used with counter current regeneration.
The properties of Auchlite A 102 D are described in the product Data Sheet.

SILICA LEAKAGE

The average silica leakage is obtained by multiplying the basic leakage value from Table 1 by the correction factors A, B and C from Tables 2 to 4

$$LEAK = LEAK_0 \times A \times B \times C$$

TABLE 1 : Basic Silica Leakage versus NaOH regenerant level.

NaOH g / L	Leakage ppm SiO_2 ($Leak_0$)
30	0.050
40	0.036
50	0.024
60	0.017
80	0.010

TABLE 2 : Leakage Correction Factor A versus Silica to Total Anions Ratio.

SiO_2 %	Factor A
1	0.2
5	0.5
10	1.0
20	2.0
30	3.0

TABLE 3 : Leakage Correction Factor B versus Water Temperature..

Water ^{0}C	Factor B
5	0.7
10	0.8
15	1.0
20	1.2
25	1.5
30	2.2

TABLE 4 : Leakage Correction Factor C versus Regenerant Temperature.

Water ^{0}C	Factor C
10	1.65
15	1.37
20	1.16
25	1.00
30	0.87

TABLE 3 : Suggested Operating Conditions

Maximum operating temperature..........	35 ^{0}C (OH^-), 70 ^{0}C (Cl^-)
Minimum bed depth	1000 mm (preferably > 1400 mm)
Service flow rate	5 to 40 BV* / h
Maximum linear velocity	40 m / h
Regenerant	NaOH
Level	30 to 70 g / L
Flow rate	2 to 8 BV/ h (minimumcontact time : 30 minutes)
Concentration	3% to 5% .
Slow rinse	2 BV at regeneration flow rate
Fast rinse	2 to 12 BV at service flow rate.

* 1 BV (Bed Volume) = 1 m^3 solution pe

SEPARATION TECHNOLOGIES

ION EXCHANGE RESINS

AUCHLITE A 102 D

ENGINEERING DATA SHEET
(CO-CURRENT REGENERATION)

Auchtel

Auchlite A 102 D is a type 2 strong base Anion Exchange Resin. These data provide information to calculate the silica leakage and operating capacity of Auchlite A 102 D used with co-current regeneration.
The properties of Auchlite A 102 D are described in the product Data Sheet.

SILICA LEAKAGE

The average silica leakage is obtained by multiplying the basic leakage value from Table 1 by the correction factors A, B and C from Tables 2 to 4

$$LEAK = LEAK_0 \times A \times B \times C$$

TABLE 1 : Basic Silica Leakage versus NaOH regenerant level.

NaOH g / L	Leakage ppm SiO_2 ($Leak_0$)
50	0.120
60	0.081
80	0.039
100	0.028

TABLE 2 : Leakage Correction Factor A versus Silica to Total Anions Ratio.

SiO_2 %	Factor A
1	0.2
5	1.0
10	2.0
20	4.0
30	6.0

TABLE 3 : Leakage Correction Factor B versus Water Temperature

Water ^{0}C	Factor B
5	0.7
10	0.8
15	1.0
20	1.2
25	1.5
30	2.2

TABLE 4 : Leakage Correction Factor C versus Regenerant Temperature

Water ^{0}C	Factor B
10	1.65
15	1.70
20	1.16
25	1.00
30	0.87

TABLE 3 : Suggested Operating Conditions

Maximum operating temperature..........	35 ^{0}C (OH^-), 70 ^{0}C (Cl^-)
Minimum bed depth	700 mm
Service flow rate	5 to 40 BV* / h
Maximum linear velocity	40 m / h
Regenerant	NaOH
Level	50 to 100 g / L
Flow rate	2 to 8 BV/ h (minimumcontact time : 30 minutes)
Concentration	3% to 5% .
Slow rinse	2 BV at regeneration flow rate
Fast rinse	2 to 12 BV at service flow rate.

* 1 BV (Bed Volume) = 1 m^3 solution pe

OPERATING CAPACITY

The operating capacity of Auchlite A 102 D is obtained by multiplying the basic capacity value from Table 6 by the correction factor D to G from Tables 7 to 10.

$$Cap = Cap_O \times D \times E \times F \times G$$

TABLE 8 : Capacity Correction Factor E versus CO_2 content (% of Total Anions)

CO_2 %	Factor E
0	0.97
20	1.00
30	1.02
50	1.05
75	1.08
99	1.12

TABLE 6 : Basic Capacity versus NaOH regenerant level (Co-flow regeneration)

NaOH g/L	Capacity eq/L (Cap_O)
50	0.85
60	0.91
70	0.96
80	0.99
100	1.03

TABLE 9 : Capacity Correction Factor F versus Silica to Total Anions Ratio and NaOH Temperature(^{0}C)

	5	10	20	30% SiO_2
5^0C	0.96	0.93	0.87	0.83
10	0.97	0.94	0.89	0.85
15	0.98	0.95	0.91	0.87
20	0.99	0.96	0.92	0.89
25	1.00	0.98	0.94	0.90
30	1.01	0.99	0.93	0.92

TABLE 7 : Capacity Correction Factor D versus Sulphate to Total Anions Ratio.

SO_4 %	Factor D
0	0.94
25	0.97
50	1.00
75	1.03
99	1.06

TABLE 1 0 : Capacity Correction Factor G versus Silica Endpoint ($DSiO_2$ = difference between average leakage and endpoint)

$DSiO_2$ (ppb)	Factor G
50	0.90
100	0.95
200	1.00
300	1.04

SAFE USE INFORMATION

A Material Safety Data Sheet is available for each product. To obtain a copy contact your Auchtel representative.

CAUTION

Acid and basic regenerant solutions are corrosive and should be handled in a manner that will prevent eye and skin contact. Nitric acid and other strong oxidizing agents can cause explosive type reactions when mixed with Ion Exchange Resins. Proper design of process equipment to prevent rapid buildup of pressure is necessary if use of an oxidizing agent, such as nitric acid is contemplated. Before using strong oxidizing agents in contact with Ion Exchange Resins, consult sources knowledgeable in the handling of these materials.

Auchtel ProductsLtd.,142 C,Victor House, N.M.Joshi Marg, Lower Parel(w),Mumbai-400 013

Tel. 91-22-493 3975, Fax. 91-22-493 9755, 497 4211 E-mail -auchtel@vsnl.com