



DOWEX UPCORE Mono A-500

A Uniform Particle Size, Strong Base Anion Exchange Resin Specifically Designed for the UPCORE System

Product	Type	Matrix	Functional group
DOWEX* UPCORE* Mono A-500	Type 1 strong base	Styrene-DVB, gel	Quaternary amine

Guaranteed Sales Specifications		Cl ⁻ form
Total exchange capacity, min.	eq/l	1.3
	kg/ft ³ as CaCO ₃	28.4
Water content	%	50 - 58
Bead size distribution [†]		
Mean particle size	µm	575 ± 50
Uniformity coefficient, max.		1.1
>850µ, max.	%	5
<300µ, max.	%	0.5
Whole uncracked beads, min.	%	95

Typical Physical and Chemical Properties		Cl ⁻ form
Total swelling (Cl ⁻ → OH ⁻)	%	20
Particle density	g/ml	1.08
Shipping weight	g/l	670
	lbs/ft ³	42

Recommended Operating Conditions	
Maximum operating temperature:	
OH ⁻ form	60°C (140°F)
Cl ⁻ form	100°C (212°F)
pH range	0-14
Bed depth, min.	1200 mm (4 ft)
Pressure drop, design max.	1.5 bar (22 psi)
Pressure drop, max.	2.5 bar (37 psi)
Flow rates:	
Service/fast rinse	5-60 m/h (2-24 gpm/ft ²)
Regeneration/displacement rinse	4-10 m/h (1.6-4 gpm/ft ²)
Total rinse requirement	2-4 Bed volumes
Regenerant	2-5% NaOH

[†]For additional particle size information, please refer to the Particle Size Distribution Cross Reference Chart (Form No 177-01775/CH 171-476-E).

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DOWEX Ion Exchange Resins

For more information about DOWEX resins,
call Dow Liquid Separations business:

North America 1-800-447-4369
Latin America (+55) 11-5188-9277
Europe (+32) 3-450-2240
Japan (+81) 3-5460-2100
Australia (+61) 2-9776-3226
<http://www.dowex.com>

Typical properties and applications:

DOWEX* UPCORE* Mono A-500 strong base anion resin is a uniform particle size, gellular, type 1 anion resin designed for use in the UPCORE packed bed counter-current regeneration system.

The absence of large beads in DOWEX UPCORE Mono A-500 resin

results in high operating capacity and good resistance to silica fouling.

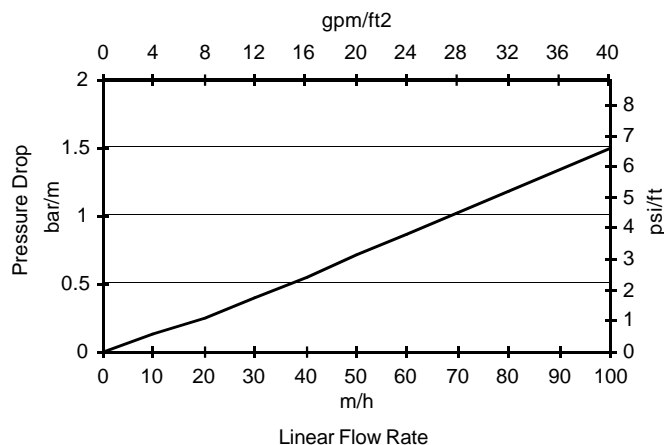
DOWEX UPCORE Mono A-500 resin has an excellent resistance to mechanical and osmotic stress which helps minimize resin attrition.

Packaging

25 liter bags or 5 cubic feet fiber drums.

Figure 1. Pressure Drop Data

Temperature = 20° C (68° F)



For other temperatures use:

$$P_T = P_{20^\circ\text{C}} / (0.026 T_{\text{C}} + 0.48), \text{ where } P \equiv \text{bar/m}$$

$$P_T = P_{68^\circ\text{F}} / (0.014 T_{\text{F}} + 0.05), \text{ where } P \equiv \text{psi/ft}$$

Warning: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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Published April 2002.





DOWEX UPCORE Mono A2-500

A Uniform Particle Size, Type 2 Strong Base Anion Exchange Resin Specifically Designed for the UPCORE System

Product	Type	Matrix	Functional group
DOWEX* UPCORE* Mono A2-500	Type 2 strong base anion	Styrene-DVB, gel	Dimethylethanol amine

Guaranteed Sales Specifications		Cl ⁻ form
Total exchange capacity, min.	eq/l	1.2
	kgr/ft ³ as CaCO ₃	26.2
Water content	%	46 - 55
Bead size distribution†		
Mean particle size	μm	550 ± 50
Uniformity coefficient, max.		1.1
>850 μ, max.	%	5
<300 μ, max.	%	0.5
Whole uncracked beads, min.	%	95

Typical Physical and Chemical Properties		Cl ⁻ form
Total swelling (Cl ⁻ → OH ⁻)	%	20
Particle density	g/ml	1.09
Shipping weight	g/l	690
	lbs/ft ³	43

Recommended Operating Conditions

- Maximum operating temperature:
 - OH⁻ form 35°C (95°F)
 - Cl⁻ form 70°C (160°F)
- pH range 0 - 14
- Bed depth, min. 1,200 mm (4 ft)
- Pressure drop, design max. 1.5 bar (22 psi)
- Pressure drop, max. 2.5 bar (37 psi)
- Flow rates:
 - Service/fast rinse 5-60 m/h (2-24 gpm/ft²)
 - Regeneration/displacement rinse 4-10 m/h (1.6-4 gpm /ft²)
- Total rinse requirement 2 - 4 Bed volumes
- Regenerant 2-5% NaOH

† For additional particle size information, please refer to Particle Size Distribution Cross Reference Chart (Form No. 177-01775).

Typical properties and applications

DOWEX UPCORE Mono A2-500 strong base anion resin is a uniform particle size, gellular, type 2 anion resin designed for use in the UPCORE system. It has a special pore structure which facilitates the removal of organic matter from water and its subsequent elution from the resin.

The absence of large beads in DOWEX UPCORE Mono A2-500 resin results in extremely high operating capacity and good chemical efficiency.

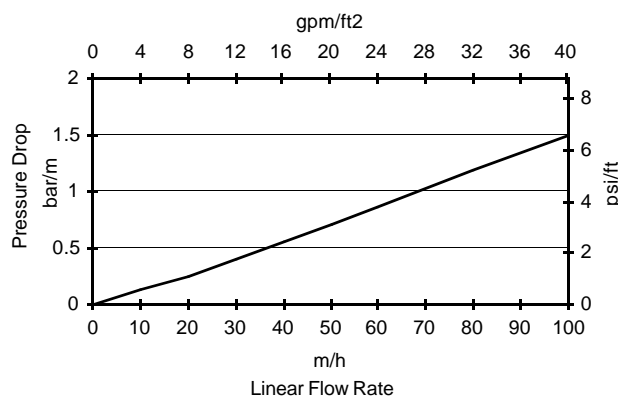
DOWEX UPCORE Mono A2-500 resin has an excellent resistance to mechanical and osmotic stress which helps minimize resin attrition.

Packaging

25 liter bags or 5 cubic feet fiber drums

Figure 1. Pressure Drop Data

Temperature = 20° C (68° F)



For other temperatures use:

$$P_T = P_{20^\circ\text{C}} / (0.026 T_{\text{C}} + 0.48), \text{ where } P = \text{bar/m}$$

$$P_T = P_{68^\circ\text{F}} / (0.014 T_{\text{F}} + 0.05), \text{ where } P = \text{psi/ft}$$

DOWEX Ion Exchange Resins

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<http://www.dowex.com>

Warning: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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DOWEX UPCORE Mono A-625

A Uniform Particle Size, Strong Base Anion Exchange Resin Specifically Designed for Layered Anion Beds in the UPCORE System

Product	Type	Matrix	Functional group
DOWEX* UPCORE* Mono A-625	Type 1 strong base anion	Styrene-DVB, gel	Quaternary amine

Guaranteed Sales Specifications		Cl ⁻ form
Total exchange capacity, min.	eq/l	1.3
	kgr/ft ³ as CaCO ₃	28.4
Water content	%	47 - 54
Bead size distribution†		
Mean particle size	μm	670 ± 50
Uniformity coefficient, max.		1.1
>850 μ, max.	%	5
<300 μ, max.	%	0.5
Whole uncracked beads, min.	%	95

Typical Physical and Chemical Properties		Cl ⁻ form
Total swelling (Cl ⁻ → OH ⁻)	%	20
Particle density	g/ml	1.09
Shipping weight	g/l	670
	lbs/ft ³	42

Recommended Operating Conditions

- Maximum operating temperature:
 - OH⁻ form 60°C (140°F)
 - Cl⁻ form 100°C (212°F)
- pH range 0 - 14
- Bed depth, min. 800 mm (2.6 ft)
- Pressure drop, design max. 1.5 bar (22 psi)
- Pressure drop, max. 2.5 bar (37 psi)
- Flow rates:
 - Service/fast rinse 5-60 m/h (2-24 gpm/ft²)
 - Regeneration/displacement rinse 4-10 m/h (1.6-4 gpm /ft²)
- Total rinse requirement 2 - 4 Bed volumes
- Regenerant 2-5% NaOH

† For additional particle size information, please refer to Particle Size Distribution Cross Reference Chart (Form No. 177-01775).

Typical properties and applications

DOWEX UPCORE Mono A-625 strong base anion resin is a uniform particle size, gellular, type I anion resin designed for use in the UPCORE counter-current regeneration packed bed system. The particle size is specially selected to maintain excellent separation in layered beds when used with DOWEX UPCORE Mono WB-500 weak base anion resin.

The absence of large beads in DOWEX UPCORE Mono A-625 resin results in high operating capacity and good resistance to silica fouling.

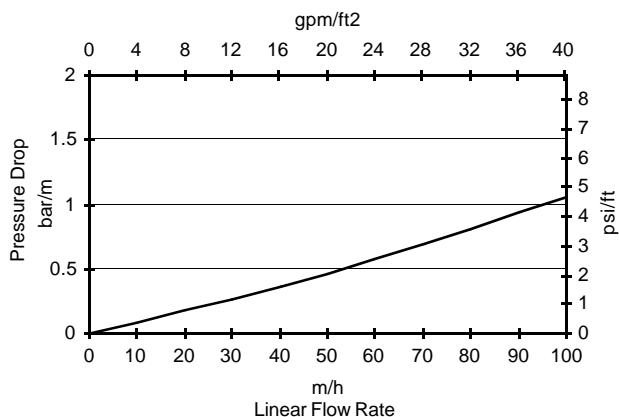
DOWEX UPCORE Mono A-625 resin has an excellent resistance to mechanical and osmotic stress which helps minimize resin attrition.

Packaging

25 liter bags or 5 cubic feet fiber drums

Figure 1. Pressure Drop Data

Temperature = 20° C (68° F)



For other temperatures use:

$$P_T = P_{20^\circ\text{C}} / (0.026 T_{\text{C}} + 0.48), \text{ where } P = \text{bar/m}$$

$$P_T = P_{68^\circ\text{F}} / (0.014 T_{\text{F}} + 0.05), \text{ where } P = \text{psi/ft}$$

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DOWEX UPCORE Mono C-600

A Uniform Particle Size Strong Acid Cation Exchange Resin Specifically Designed for the UPCORE System

Product	Type	Matrix	Functional group
DOWEX* UPCORE* Mono C-600	Strong acid cation	Styrene-DVB, gel	Sulfonic acid

Guaranteed Sales Specifications		Na ⁺ form	H ⁺ form
Total exchange capacity, min.	eq/l	2.0	1.8
	kg/ft ³ as CaCO ₃	43.7	39.3
Water content	%	42 - 48	50 - 56
Bead size distribution [†]			
Mean particle size	µm	585±50	600±50
Uniformity coefficient, max.	%	1.1	1.1
>850 µ, max.	%	5	5
<300 µ, max.	%	0.5	0.5
Whole uncracked beads, min.	%	95	95

Typical Physical and Chemical Properties		Na ⁺ form	H ⁺ form
Total swelling (Na ⁺ → H ⁺)	%	8	8
Particle density	g/ml	1.28	1.22
Shipping weight	g/l	820	800
	lbs/ft ³	51	50

Recommended Operating Conditions	
Maximum operating temperature	120°C (250°F)
pH range	0-14
Bed depth, min.	1200 mm (4 ft)
Pressure drop, design max.	1.5 bar (22 psi)
Pressure drop, max.	2.5 bar (37 psi)
Flow rates:	
Service/fast rinse	5-60 m/h (2-24 gpm/ft ²)
Regeneration/displacement rinse	5-20 m/h (2-8 gpm/ft ²)
Total rinse requirement	1-3 Bed volumes
Regenerant	8-12% NaCl, 4-6% HCl, 1-4% H ₂ SO ₄

[†]For additional particle size information, please refer to the Particle Size Distribution Cross Reference Chart (Form No. 177-01775/CH 171-476-E).

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Ion Exchange Resins

For more information about DOWEX resins,
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<http://www.dow.com/liquidseps>

Typical properties and applications:

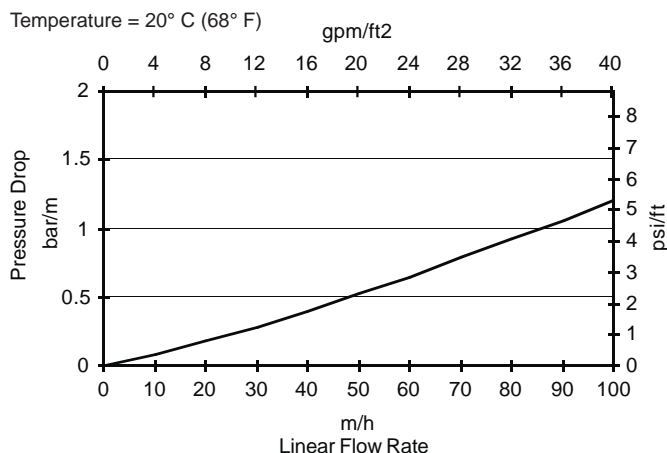
DOWEX* UPCORE* Mono C-600 strong acid cation exchange resin is a uniform particle size resin specifically designed for use in the UPCORE packed bed counter-current regeneration system. It is well suited for use in both demineralization and softening applications. DOWEX UPCORE Mono C-600 resin has a smaller average particle

diameter than conventional polydispersed cation resin. Its smaller, uniform size enhances operating capacity and regeneration efficiency while maintaining a moderate pressure drop. DOWEX UPCORE Mono C-600 resin also has outstanding resistance to attrition due to compressive and osmotic stress.

Packaging

25 liter bags or 5 cubic feet fiber drums.

Figure 1. Pressure Drop Data



For other temperatures use:

$$P_T = P_{20^\circ\text{C}} / (0.026 T_{\text{C}} + 0.48), \text{ where } P \equiv \text{bar/m}$$

$$P_T = P_{68^\circ\text{F}} / (0.014 T_{\text{F}} + 0.05), \text{ where } P \equiv \text{psi/ft}$$

Warning: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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Published September 1998.



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DOWEX UPCORE IF-62

An Inert Resin Specifically Designed for the UPCORE Packed Bed Counter-current Regeneration System

Product	Type	Matrix	Functional group
DOWEX* UPCORE* IF-62	Inert	Polyethylene	None

Typical Physical and Chemical Properties			
Particle size range		mm	2.5 - 4.0
Particle density		g/ml	0.96
Shipping weight		g/l	620
		lbs/ft ³	38

Recommended Operating Conditions	
Maximum operating temperature	110°C (230°F)
pH range	0-14
Bed depth, min.	150 mm (6")
Flow rates	5-60 m/h (2-24 gpm/ft ²)

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DOWEX

Ion Exchange Resins

For more information about DOWEX resins,
call Dow Liquid Separations business:

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Europe (+31) 20-691-6268
Japan (+81) 3-5460-2100
Australia (+61) 2-9776-3226
<http://www.dow.com/liquidseps>

Typical properties and applications:

DOWEX* UPCORE* IF-62 inert resin is supplied in spherical form. Its particle size is specifically selected for use in the UPCORE packed bed counter-current regeneration system. DOWEX UPCORE IF-62 resin has a density less than water which ensures it stays above the ion exchange resin bed.

During compaction and regeneration DOWEX UPCORE IF-62 resin allows dirt and resin fragments to pass through while retaining the resin bed which protects the collector system against blockage.

Packaging

25 liter bags.

Warning: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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Informação do Produto



DOWEX MARATHON A

Partícula de Tamanho Uniforme, Resina de Troca Aniônica Fortemente Básica de Alta Capacidade para Aplicações em Desmineralização

Produto	Tipo	Matriz	Grupo Funcional
DOWEX* MARATHON* A	Aniônica Fortemente Básica Tipo 1	Estireno-DVB, gel	Amina Quaternária

Especificações Garantidas de Vendas		Forma Cl ⁻	Forma OH ⁻
Capacidade total de troca, min.	eq/l	1.3	1.0
	kgr/pés ³ como CaCO ₃	28.4	21.9
Teor de Água	%	50 -60	60 – 72
Coeficiente de Uniformidade, max.		1.1	1.1

Propriedades Físicas e Químicas Típicas		Forma Cl ⁻	Forma OH ⁻
Tamanho médio da partícula [†]	µm	575 ± 50	610 ± 50
Esferas totalmente perfeitas	%	95 - 100	95 – 100
Inchamento Total (Cl ⁻ → OH ⁻)	%	20	20
Densidade da Partícula	g/ml	1.08	1.06
Peso para Transporte	g/l	670	640
	lbs/pés ³	42	40

Condições Recomendadas de Operação	
Temperatura máxima de operação: forma OH ⁻	60°C (140°F)
forma Cl ⁻	100°C (212°F)
Variação do pH	0-14
Profundidade do leito, min.	800 mm (2,6 pés)
Taxas de Vazão:	
Serviço/lavagem rápida	5-60 m/h (2-24 gpm/pés ²)
Retrolavagem	Ver figura 1
Regeneração co-corrente/lavagem de deslocamento	1-10 m/h (0.4-4 gpm/pés ²)
Regeneração contra-corrente/lavagem de deslocamento	5-20 m/h (2-8 gpm/pés ²)
Total de lavagem requisitada	3-6 volumes de Leito
Regenerante:	NaOH 2-5%
Temperatura:	Ambiente ou acima de 50°C (122°F) para remoção de sílica
Carga de matéria orgânica, max.	3g KMnO ₄ /l resina

[†] Para informações adicionais sobre o tamanho da partícula, ver Cruzamento de Distribuição do Tamanho da Partícula Gráfico de Referência (Formulário No. 177-01775/CH 171-476-E).

*Marca Registrada da The Dow Chemical Company

Resinas de Troca Iônica DOWEX

DOWEX

Resinas de Troca Iônica

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Europa (+31) 20-691-6268
Japão (+81) 3-5460-2100
Austrália (+61) 2-9776-3226
<http://www.dowex.com>

Propriedades típicas e aplicações: A resina de troca aniônica **DOWEX* MARATHON* A** é especificamente projetada para fornecer alto rendimento e operação econômica em leitos desmineralizadores primários. Devido à sua partícula de tamanho uniforme, esta resina oferece inúmeras vantagens econômicas sobre as resinas convencionais (polidispersas). O pequeno tamanho uniforme das esferas da resina DOWEX MARATHON A resulta em rápida cinética de troca durante a operação, regeneração mais completa da resina e enxágue mais completo após a regeneração. Esta resina pode ser utilizada para todos os tipos de água, especialmente, para águas que possuem alta porcentagem de ions fracos como sílica e dióxido de carbono.

Acondicionamento: Sacos de 25 litros ou tambores de fibra de 5 pés cúbicos.

Figura 1. Dados de Expansão da Retrolavagem

Temperatura = 25°C (77°F)

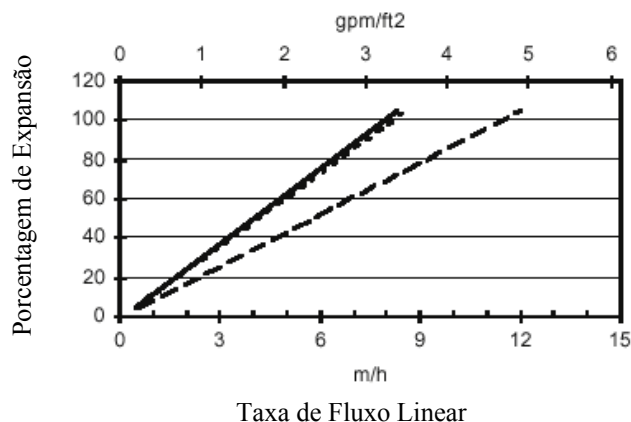
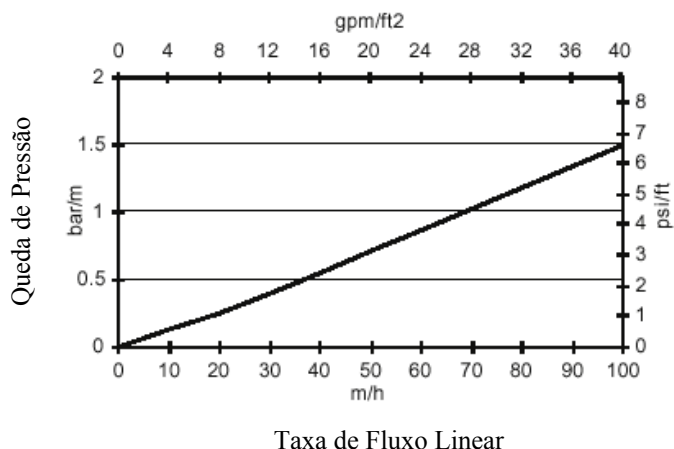


Figura 2. Dados de Queda de Pressão

Temperatura = 20°C (68°F)



Forma Cl- —————
Forma OH- - - - - -
Forma SO4-- - - - - -

Aplicar, para outras temperaturas:

$$F_T = F_{77°F} [1 + 0.008 (T_F - 77)], \text{ onde } F \equiv \text{gpm/pés}^2$$

$$F_T = F_{25°C} [1 + 0.008 (1.8T_C - 45)], \text{ onde } F \equiv \text{m/h}$$

Aplicar, para outras temperaturas:

$$P_T = P_{20°C} / (0.026 T_C + 0.48), \text{ onde } P \equiv \text{bar/m}$$

$$P_T = P_{68°F} / (0.014 T_F + 0.05), \text{ onde } P \equiv \text{psi/pés}$$

Advertência: Agentes oxidantes tais como ácido nítrico atacam as resinas de troca iônica sob determinadas condições. Isto pode ocasionar desde uma suave degradação da resina até uma violenta reação exotérmica (explosão). Antes de utilizar agentes oxidantes fortes, consulte fontes bem informadas sobre o manuseio destes produtos.

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Informação do Produto



DOWEX MARATHON C

Partícula de Tamanho Uniforme, Resina de Troca Catiônica de Alta Capacidade para Aplicações em Abrandamento e Desmineralização

Produto	Tipo	Matriz	Grupo Funcional
DOWEX* MARATHON* C	Catiônica Fortemente Ácida	Estireno-DVB, gel	Ácido Sulfônico

Especificações Garantidas de Vendas		Forma Na ⁺	Forma H ⁺
Capacidade total de troca, min.	eq/l	2.0	1.8
	kgr/pés ³ como CaCO ₃	43.7	39.3
Teor de Água	%	42 - 48	50 - 56
Coeficiente de Uniformidade, max.		1.1	1.1

Propriedades Físicas e Químicas Típicas		Forma Na ⁺	Forma H ⁺
Tamanho médio da partícula [†]	µm	585 ± 50	600 ± 50
Esferas totalmente perfeitas	%	95 - 100	95 - 100
Inchamento Total (Na ⁺ → H ⁺)	%	8	8
Densidade da Partícula	g/ml	1.28	1.20
Peso para Transporte	g/l	820	800
	lbs/pés ³	51	50

Condições Recomendadas de Operação	
Temperatura máxima de operação:	120° C (250° F)
Variação do pH	0-14
Profundidade do leito, min.	800 mm (2,6 pés)
Taxas de Vazão:	
Serviço/lavagem rápida	5-60 m/h (2-24 gpm/pés ²)
Retrolavagem	Ver figura 1
Regeneração co-corrente/lavagem de deslocamento	1-10 m/h (0.4-4 gpm/pés ²)
Regeneração contra-corrente/lavagem de deslocamento	5-20 m/h (2-8 gpm/pés ²)
Total de lavagem requisitada	2-5 volumes de Leito
Regenerante:	1-8% H ₂ SO ₄ , 4-8% HCl ou 8-12% NaCl

[†] Para informações adicionais sobre o tamanho da partícula, ver Cruzamento de Distribuição do Tamanho da Partícula Gráfico de Referência (Formulário No. 177-01775/CH 171-476-E).

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Resinas de Troca Iônica DOWEX

DOWEX

Resinas de Troca Iônica

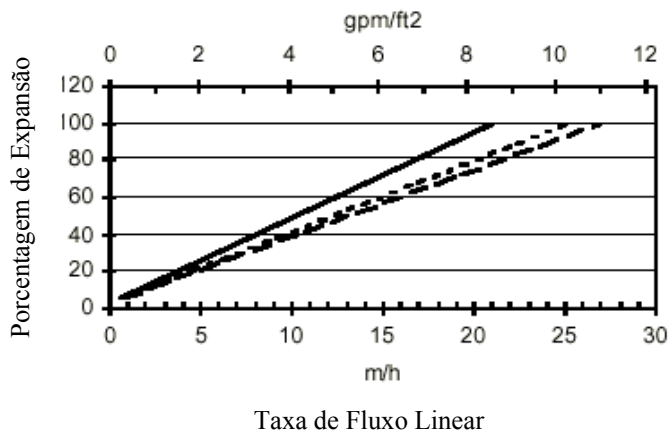
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Propriedades típicas e aplicações: A resina de troca catiônica fortemente ácida **DOWEX* MARATHON* C** é uma resina de partícula de tamanho uniforme projetada para aplicações de desmineralização e abrandamento. O pequeno tamanho uniforme das esferas da resina apresenta cinética mais rápida do que as resinas convencionalmente dimensionadas (polidispersadas). Uma cinética mais eficiente resulta em um aumento na eficiência de regeneração, capacidade de operação mais alta, utilização reduzida de regenerante e menor quantidade de águas de lavagem. A resina DOWEX MARATHON C mostra também estabilidade relevante para tensão compressiva e osmótica.

Acondicionamento: Sacos de 25 litros ou tambores de fibra de 5 pés cúbicos.

Figura 1. Dados de Expansão da Retrolavagem
Temperatura = 25°C (77°F)



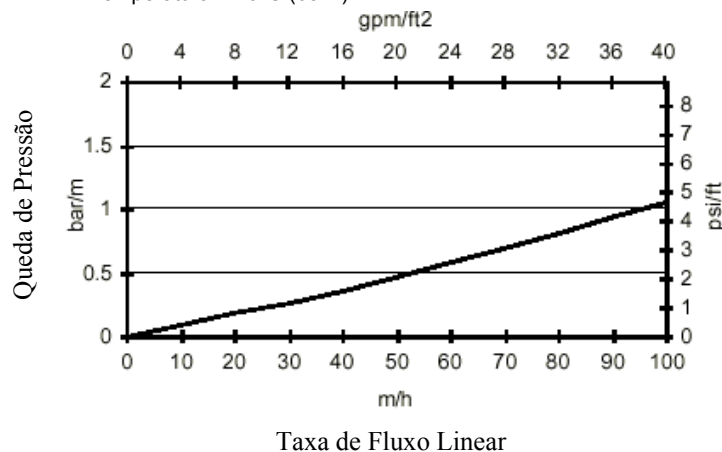
Forma H+ —————
Forma Na+ - - - - -
Forma Ca++ ·······

Aplicar, para outras temperaturas:

$$F_T = F_{77°F} [1 + 0.008 (T_F - 77)], \text{ onde } F \equiv \text{gpm/pés}^2$$

$$F_T = F_{25°C} [1 + 0.008 (1.8T_C - 45)], \text{ onde } F \equiv \text{m/h}$$

Figura 2. Dados de Queda de Pressão
Temperatura = 20°C (68°F)



Aplicar, para outras temperaturas:

$$P_T = P_{20°C} / (0.026 T_C + 0.48), \text{ onde } P \equiv \text{bar/m}$$

$$P_T = P_{68°F} / (0.014 T_F + 0.05), \text{ onde } P \equiv \text{psi/pés}$$

Advertência: Agentes oxidantes tais como ácido nítrico atacam as resinas de troca iônica sob determinadas condições. Isto pode ocasionar desde uma suave degradação da resina até uma violenta reação exotérmica (explosão). Antes de utilizar agentes oxidantes fortes, consulte fontes bem informadas sobre o manuseio destes produtos.

Observação: A Dow julga serem as informações e recomendações aqui contidas, precisas e confiáveis, a partir de 01 de dezembro de 1998, e que os produtos Dow aqui mencionados são adequados para os propósitos recomendados. Todavia uma vez que as condições de uso estão fora do seu controle, a Dow não garante resultados com uso de tais produtos ou com qualquer outra informação aqui contida. Nenhuma garantia expressa ou implícita é dada. Uma vez que as leis governamentais e as condições de uso podem ser alteradas, é responsabilidade do Cliente determinar a conveniência dos produtos Dow em relação aos seus usos finais específicos e a obediência à lei. Não há liberdade quanto a patentes da Dow ou outros.



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