

Data sheet

RALEX AMH-PES

Heterogeneous ion-exchange membrane for electrodialysis, electrodeionization and membrane electrolysis.

Basic material specification

Ion-exchange group	R - (CH ₃) ₃ N ⁺	quaternary ammonium
Ionic form – counter ion	Cl ⁻	chloride
Basic binder on base	PE	polyethylene
Fitting fabrics	PES	polyester

Mechanical properties

Thickness of dry membrane	tl _s [mm]	< 0,45	
Thickness of swelled membrane	tl _z [mm]	< 0,75	
Swelled differences Δ (in demi-water)	thickness	Δ tl [%]	< 60
	length	Δ l [%]	< 3
	width	Δ w [%]	< 4
	weight	Δ m [%]	< 65
Hydrodynamic permeability for water	Δ P = 1 bar	[l/h.m ²]	0

Electrochemical properties

Resistance in 0.5 M NaCl (measured under DC current)	surface	R _A [Ω.cm ²]	< 7,5
	specific	R _S [Ω.cm]	< 120
Transport number	0.5/0.1M KCl	t ^M	> 0,95
Permselectivity	0.5/0.1M KCl	P _{STAT} [%]	> 90

Other properties

- Hygiene and Epidemiology Certificate
- Good thermal resistance (max. 50 °C)
- Resistance against aggressive chemicals and fouling components
- Long-term stability at pH 0-8, except strong oxidizing agents
- For regeneration its possible to use alkali to pH 12 for a short time
- High resistance against some industrial membrane poisons
- Long life cycle

Release date: April 2008

Data sheet

RALEX AMH-PAD

Heterogeneous ion-exchange membrane for electrodialysis and membrane electrolysis.

Basic material specification

Ion-exchange group	R - (CH ₃) ₃ N ⁺	quaternary ammonium
Ionic form – counter ion	Cl ⁻	chloride
Basic binder on base	PE	polyethylene
Fitting fabrics	PAD	polyamide

Mechanical properties

Thickness of dry membrane	t_s [mm]	< 0,45	
Thickness of swelled membrane	t_z [mm]	< 0,7	
Swelled differences Δ (in demi-water)	thickness	Δt_l [%]	< 50
	length	Δl [%]	< 9,5
	width	Δw [%]	< 10
	weight	Δm [%]	< 70
Hydrodynamic permeability for water	$\Delta P = 1$ bar	$[l/h.m^2]$	0

Electrochemical properties

Resistance in 0.5 M NaCl (measured under DC current)	surface	R_A [$\Omega.cm^2$]	< 7
	specific	R_S [$\Omega.cm$]	< 120
Transport number	0.5/0.1M KCl	t^M	> 0,95
Permselectivity	0.5/0.1M KCl	P_{STAT} [%]	> 90

Other properties

- Hygiene and Epidemiology Certificate
- Good thermal resistance (max. 50 °C)
- Resistance against aggressive chemicals and fouling components
- Long-term stability at pH 5-12
- For regeneration its possible to use non oxidizing acid above pH 2 for a short time
- High resistance against some industrial membrane poisons
- Long life cycle

Release date: April 2008

Data sheet

RALEX CM-PES

Heterogeneous ion-exchange membrane for electrodialysis, electrodeionization and membrane electrolysis.

Basic material specification

Ion-exchange group	R - SO ₃ ⁻	sulphon
Ionic form – counter ion	Na ⁺	sodium
Basic binder on base	PE	polyethylene
Fitting fabrics	PES	polyester

Mechanical properties

Thickness of dry membrane	tl _s [mm]	< 0,45	
Thickness of swelled membrane	tl _z [mm]	< 0,7	
Swelled differences Δ (in demi-water)	thickness	Δ tl [%]	< 55
	length	Δ l [%]	< 3
	width	Δ w [%]	< 4
	weight	Δ m [%]	< 55
Hydrodynamic permeability for water	Δ P = 1 bar	[l/h.m ²]	0

Electrochemical properties

Resistance in 0.5 M NaCl (measured under DC current)	surface	R _A [Ω.cm ²]	< 10
	specific	R _S [Ω.cm]	< 160
Transport number	0.5/0.1M KCl	t ^M	> 0,95
Permselectivity	0.5/0.1M KCl	P _{STAT} [%]	> 90

Other properties

- Hygiene and Epidemiology Certificate
- Good thermal resistance (max. 50 °C)
- Resistance against aggressive chemicals and fouling components
- Long-term stability at pH 0-8, except strong oxidizing agents
- For regeneration its possible to use alkali to pH 12 for a short time
- High resistance against some industrial membrane poisons
- Long life cycle

Release date: April 2008

Data sheet

RALEX CM-PAD

Heterogeneous ion-exchange membrane for electrodialysis and membrane electrolysis.

Basic material specification

Ion-exchange group	R - SO ₃ ⁻	sulphon
Ionic form – counter ion	Na ⁺	sodium
Basic binder on base	PE	polyethylene
Fitting fabrics	PAD	polyamide

Mechanical properties

Thickness of dry membrane		tl _s [mm]	< 0,45
Thickness of swelled membrane		tl _z [mm]	< 0,65
Swelled differences Δ (in demi-water)	thickness	Δ tl [%]	< 45
	length	Δ l [%]	< 9
	width	Δ w [%]	< 9,5
	weight	Δ m [%]	< 60
Hydrodynamic permeability for water	Δ P = 1 bar	[l/h.m ²]	0

Electrochemical properties

Resistance in 0.5 M NaCl (measured under DC current)	surface	R _A [Ω.cm ²]	< 8,5
	specific	R _S [Ω.cm]	< 160
Transport number	0.5/0.1M KCl	t ^M	> 0,95
Permselectivity	0.5/0.1M KCl	P _{STAT} [%]	> 90

Other properties

- Good thermal resistance (max. 50 °C)
- Resistance against aggressive chemicals and fouling components
- Long-term stability at pH 5-12
- For regeneration its possible to use non oxidizing acid above pH 2 for a short time
- High resistance against some industrial membrane poisons
- Long life cycle

Release date: April 2008

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RALEX CMH-PES

Heterogeneous ion-exchange membrane for electrodialysis, electrodeionization and membrane electrolysis.

Basic material specification

Ion-exchange group	R - SO ₃ ⁻	sulphon
Ionic form – counter ion	Na ⁺	sodium
Basic binder on base	PE	polyethylene
Fitting fabrics	PES	polyester

Mechanical properties

Thickness of dry membrane		tl _s [mm]	< 0,45
Thickness of swelled membrane		tl _z [mm]	< 0,7
Swelled differences Δ (in demi-water)	thickness	Δ tl [%]	< 55
	length	Δ l [%]	< 3
	width	Δ w [%]	< 4
	weight	Δ m [%]	< 55
Hydrodynamic permeability for water	Δ P = 1 bar	[l/h.m ²]	0

Electrochemical properties

Resistance in 0.5 M NaCl (measured under DC current)	surface	R _A [Ω.cm ²]	< 10
	specific	R _S [Ω.cm]	< 160
Transport number	0.5/0.1M KCl	t ^M	> 0,95
Permselectivity	0.5/0.1M KCl	P _{STAT} [%]	> 90

Other properties

- Hygiene and Epidemiology Certificate
- Good thermal resistance (max. 50 °C)
- Resistance against aggressive chemicals and fouling components
- Long-term stability at pH 0-8, except strong oxidizing agents
- For regeneration its possible to use alkali to pH 12 for a short time
- High resistance against some industrial membrane poisons
- Long life cycle

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RALEX CMH-PAD

Heterogeneous ion-exchange membrane for electrodialysis and membrane electrolysis.

Basic material specification

Ion-exchange group	R - SO ₃ ⁻	sulphon
Ionic form – counter ion	Na ⁺	sodium
Basic binder on base	PE	polyethylene
Fitting fabrics	PAD	polyamide

Mechanical properties

Thickness of dry membrane	tl _s [mm]	< 0,45	
Thickness of swelled membrane	tl _z [mm]	< 0,65	
Swelled differences Δ (in demi-water)	thickness	Δ tl [%]	< 45
	length	Δ l [%]	< 9
	width	Δ w [%]	< 9,5
	weight	Δ m [%]	< 60
Hydrodynamic permeability for water	Δ P = 1 bar	[l/h.m ²]	0

Electrochemical properties

Resistance in 0.5 M NaCl (measured under DC current)	surface	R _A [Ω.cm ²]	< 8,5
	specific	R _S [Ω.cm]	< 160
Transport number	0.5/0.1M KCl	t ^M	> 0,95
Permselectivity	0.5/0.1M KCl	P _{STAT} [%]	> 90

Other properties

- Good thermal resistance (max. 50 °C)
- Resistance against aggressive chemicals and fouling components
- Long-term stability at pH 5-12
- For regeneration its possible to use non oxidizing acid above pH 2 for a short time
- High resistance against some industrial membrane poisons
- Long life cycle

Release date: April 2008

Data sheet

RALEX AMH5E-HD

Heterogeneous ion-exchange membrane for cataphoresis.

Basic material specification

Ion-exchange group	R - (CH ₃) ₃ N ⁺	quaternary ammonium
Ionic form – counter ion	Cl ⁻	chloride
Basic binder on base	PE	polyethylene
Fitting fabrics	PES	polyester

Mechanical properties

Thickness of dry membrane	t _s [mm]	< 0,8	
Thickness of swelled membrane	t _z [mm]	< 1,25	
Swelled differences Δ (in demi-water)	thickness	Δ t l [%]	< 55
	length	Δ l [%]	< 1,5
	width	Δ w [%]	< 3,5
	weight	Δ m [%]	< 55
Hydrodynamic permeability for water	Δ P = 1 bar	[l/h.m ²]	0
Tension strength of membrane	σ [N]		250

Electrochemical properties

Resistance in 0.5 M NaCl (measured under DC current)	surface	R _A [Ω.cm ²]	< 19
	specific	R _S [Ω.cm]	< 170
Transport number	0.5/0.1M KCl	t ^M	> 0,94
Permselectivity	0.5/0.1M KCl	P _{STAT} [%]	> 88

Other properties

- Good thermal resistance (max. 50 °C)
- Resistance against aggressive chemicals and some of fouling components
- Long-term stability at pH 0-8, except strong oxidizing chemicals (HNO₃ max.1%, H₂O₂ max. 3%)
- Utilization of some fungicide is allowed (after consulting with MEGA a.s.)
- For regeneration its possible to use alkali solution to pH 12 for a short time
- High resistance against some industrial membrane poisons
- Long life cycle

Membrane is supplied in form of flat sheet, continual roll and tubular.

Release date: April 2008

Data sheet

RALEX CMH5E-PM

Heterogeneous ion-exchange membrane for anaphoresis.

Basic material specification

Ion-exchange group	R - SO ₃ ⁻	sulphon
Ionic form – counter ion	Na ⁺	sodium
Basic binder on base	PE	polyethylene
Fitting fabrics	PAD (PP)	polyamide (polypropylene)

Mechanical properties

Thickness of dry membrane	tl _s [mm]	< 0,75	
Thickness of swelled membrane	tl _z [mm]	< 1,1	
Swelled differences Δ (in demi-water)	thickness	Δ tl [%]	< 45
	length	Δ l [%]	< 5,5
	width	Δ w [%]	< 5,5
	weight	Δ m [%]	< 55
Hydrodynamic permeability for water	Δ P = 1 bar	[l/h.m ²]	0

Electrochemical properties

Resistance in 0.5 M NaCl (measured under DC current)	surface	R _A [Ω.cm ²]	< 19
	specific	R _S [Ω.cm]	< 180
Transport number	0.5/0.1M KCl	t ^M	> 0,95
Permselectivity	0.5/0.1M KCl	P _{STAT} [%]	> 90

Other properties

- Good thermal resistance (max. 50 °C)
- Resistance against aggressive chemicals and fouling components
- Long-term stability at pH 5-12
- For regeneration its possible to use non oxidizing acid above pH 2 for a short time
- High resistance against some industrial membrane poisons
- Long life cycle

Membrane is supplied in form of flat sheet (flat EFC box)

Membrane is supplied in form of tubular weldment (tubular EFC box)

Release date: April 2008