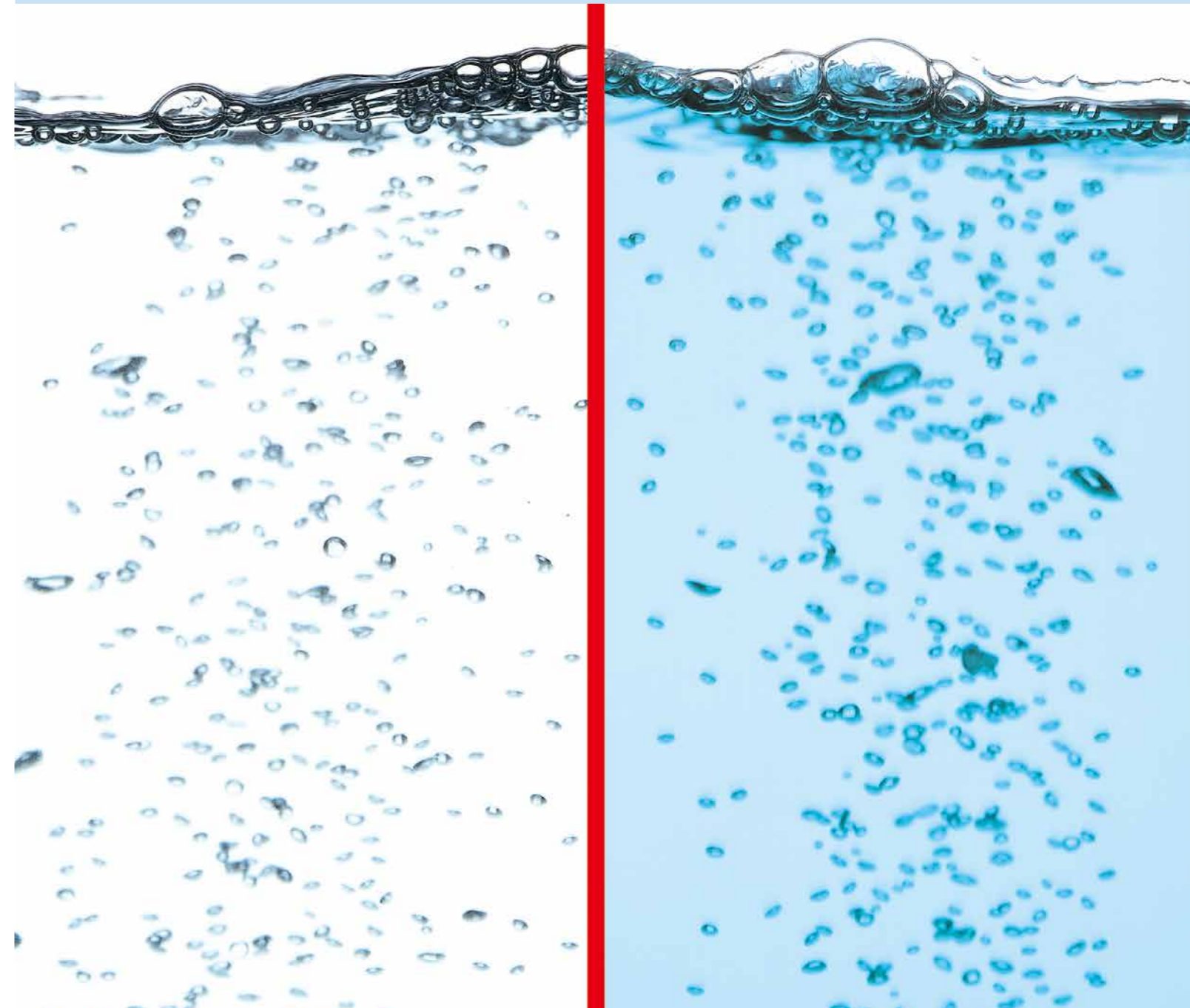




SELEMION™

离子交换膜“SELEMION™” / SELEMION™ ION-EXCHANGE MEMBRANES



安全注意事项 Safety Warning

使用时，请务必遵守本产品所附使用说明书的注意事项。
Before using the products, please be sure to read and observe the cautions printed in the user's manual.



Environmaintenance for a Blue Planet

AGC工程株式会社

AGC ENGINEERING CO., LTD.

膜事业部

Membrane Division

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FORBLUE® SELEMION™ Is a Pioneer Ion-Exchange Membrane.

FORBLUE® SELEMION™ 是离子交换膜的代表性品牌。

FORBLUE® SELEMION™, the Most Famous Ion Exchange Membrane in the World

离子交换膜 “SELEMION™”

SELEMION™ Ion-Exchange Membranes

SELEMION™ 汇集了 AGC 集团的综合实力，开发和生产的碳氢系离子交换膜。

SELEMION™ is a hydrocarbon type ion-exchange membrane that has been developed and manufactured by AGC Group.

从1950年开发至今，我们作为离子交换膜的先驱，通过坚持不懈的技术开发，不断扩展离子交换膜的应用范围。

Since we entered the membrane business in 1950, we have made continuous developments as a pioneering company, and through this we have tried to expand the range of applications of membranes.

为了充分发挥SELEMION™的功能，我们根据用途和规模，向客户提供各种各样的电渗析槽和扩散渗析槽。

We are able to provide various types of electrodialyzers and diffusion dialyzers to achieve the best membrane performance.

我们利用SELEMION™的丰富经验，为客户提供最佳的离子交换膜工艺方案。

On the basis of our long and wide-ranging experience, we are able to propose the optimum membrane process for each of our customers.

我们提供从SELEMION™的制造到渗析槽的制作、工程设计建设及维护的全套服务。

Through close cooperation between AGC and AGECE (AGC ENGINEERING Company), we perform membrane manufacture, process design, stack assembly, plant engineering and maintenance.



SELEMION™

SELEMION™的应用领域

Applications of SELEMION™

工艺 Process	应用领域 Application
扩散渗析 Diffusion Dialysis	酸回收 Acid recovery
	食盐制造 Table salt production
电渗析 Electrodialysis	食品脱盐 Deminerlization in the food industry
	工艺废水脱盐 Industrial wastewater reclamation
	自来水脱盐 Desalination (tap water)
	酸回收 Acid recovery
电解 Electrolysis	置换反应 Substitutional reactions
	氧化·还原 Reduction/oxidation reactions
	有机合成 Electroorganic synthesis

※关于电解将另行说明，欢迎垂询。
For more information about electrolysis, please contact us.

SELEMION™一览表

SELEMION™ Reference Data

“普通膜/General purpose membranes”

类别 Type	阳离子交换膜 Cation-Exchange Membrane		阴离子交换膜 Anion-Exchange Membrane		
	商品名称/Product Name	CMVN	CMTE	AMVN	DSVN
特性 Characteristic	标准 Standard	高强度 Strong (Thick)	标准 Standard	低电阻 Low resistance	
用途 Usage	电渗析 ED	电渗析 ED	电渗析 ED	扩散渗析 DD	
膜厚 Thickness	μm	100	220	100	95
反离子 Counterion	Na ⁺	Na ⁺	Cl ⁻	Cl ⁻	
破裂强度 Burst Strength	kPa	200	1150	250	150
电阻 (25°C) Resistance (77°F)	0.5 mol/L NaCl Ωcm ²	2.0	4.2	2.0	1.1
	0.5 mol/L NaNO ₃ Ωcm ²				
	0.25 mol/L Na ₂ SO ₄ Ωcm ²				
	0.5 mol/L HCl Ωcm ²				
	0.25 mol/L H ₂ SO ₄ Ωcm ²				
迁移率 Transport Number	t-Na ⁺	>0.97	>0.94		
	t-Cl ⁻			>0.95	
认证		1935/2004/ EC: 10/2011		1935/2004/ EC: 10/2011	

“特殊膜/Special purpose membranes”

类别 Type	阳离子交换膜 Cation-Exchange Membrane		阴离子交换膜 Anion-Exchange Membrane			
	商品名称/Product Name	HSF	CMF	AAV	ASVN	AHO
特性 Characteristic	氢离子 选择透过 H ⁺ - selective	高耐久性 High durability	弱碱性 Low proton leakage	一价离子 选择透过 Monovalent- ion-selective	耐高温性& 耐碱性 High temp. & Alkal-proof	
用途 Usage	电渗析 ED	电渗析 ED	电渗析 ED	电渗析 ED	电渗析 ED	
膜厚 Thickness	μm	150	440	120	100	300
反离子 Counterion	H ⁺	H ⁺	SO ₄ ²⁻	Cl ⁻	Br ⁻	
破裂强度 Burst Strength	kPa	200	1000	300	200	1200
电阻 (25°C) Resistance (77°F)	0.5 mol/L NaCl Ωcm ²	19	2.5	6.4	4.0	20
	0.5 mol/L NaNO ₃ Ωcm ²	11	2.6	29		26
	0.25 mol/L Na ₂ SO ₄ Ωcm ²	33	2.7	48		23
	0.5 mol/L HCl Ωcm ²	0.30	0.5	3.3		14
	0.25 mol/L H ₂ SO ₄ Ωcm ²	0.60	0.5	16		30
迁移率 Transport Number	t-Na ⁺	>0.97	>0.95			
	t-Cl ⁻			>0.95	>0.95	>0.95

注1: 本产品目录中记载的数值可能未经预告而发生变更, 敬请谅解。
The data published in this catalog are subject to change without notice.

注2: 上述数据均为参考值, 而非离子交换膜的性能保证值。
The values in these tables are only for reference, and are not guaranteed values.

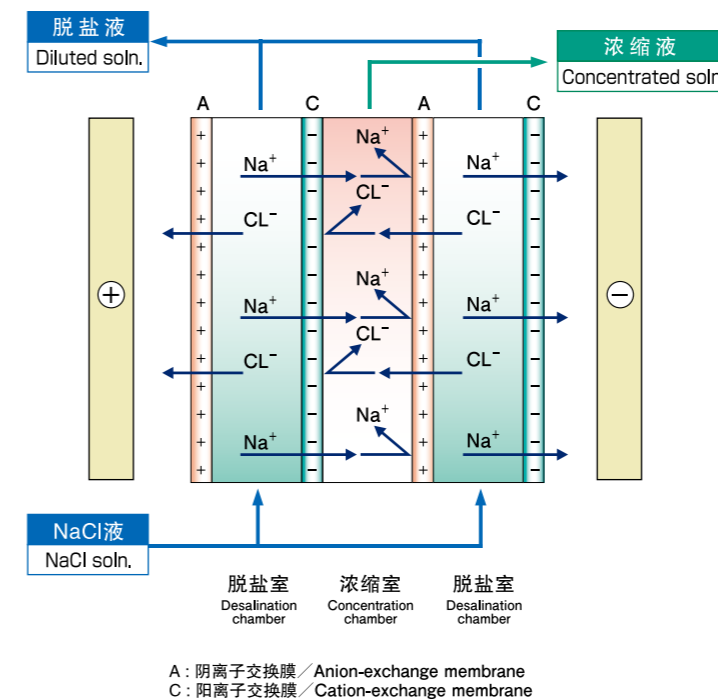
SELEMION™的应用工艺

SELEMION™ Process

电渗析 Electrolysis

特点 Characteristics

- 电渗析以直流电为驱动力进行脱盐和浓缩。
Electrodialysis is a method of desalination and concentration involving the application of a DC current.
- 无需进行类似离子交换树脂那样的再生操作, 因此能够大量减少药剂的用量。
Electrodialysis does not require chemicals that are commonly used in ion-exchange resin tower regeneration.
- 由于非离子性的化合物不会透过离子交换膜, 因此能够有效进行有机物和盐的分离。
Electrodialysis can separate valuable organic materials from salt because it only permits ionic materials to pass through the membrane.



【原理】

将阳离子膜和阴离子膜进行交错放置, 中间通过隔板多层层积, 并在其两端配置一对电极。阳极侧的阴离子交换膜和阴极侧的阳离子交换膜所隔开的空间称为脱盐室 (D室); 与此相反, 阳极侧的阳离子交换膜和阴极侧的阴离子交换膜所隔开的空间叫做浓缩室 (C室)。在电渗析槽中, D室和C室交错配置, 向脱盐室供给原液时, 阳离子向阴极移动并透过阳离子交换膜移动至右侧相邻的C室。由于C室的阴极侧被阴离子交换膜隔开, 因此可阻止阳离子继续向右侧D室移动。阴离子以同样的方式从D室向左侧相邻的C室移动。这样就形成了在D室进行脱盐, 在C室进行浓缩的电渗析效果。

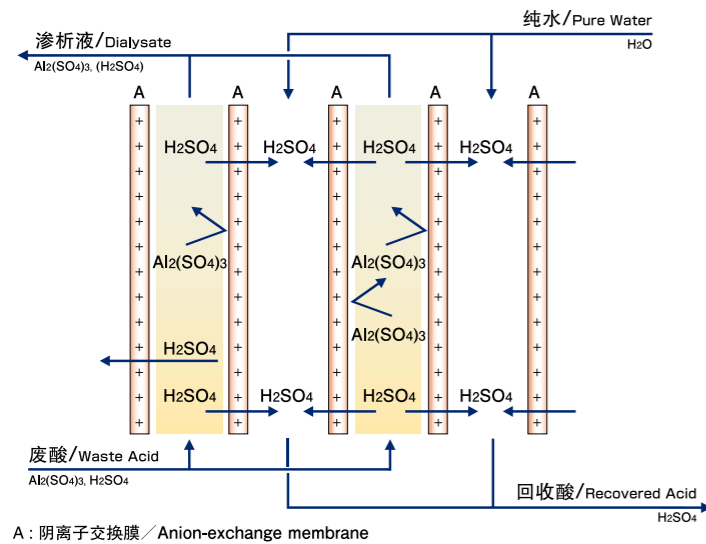
【Description】

An electrodesaliner is composed of anion and cation-exchange membranes stacked alternately with thin spacers between them and a pair of electrodes at both ends. In an electrodesaliner, two types of chambers are thus placed between a pair of electrodes. One is a desalination (D) chamber partitioned with an anion-exchange membrane on the anode side and a cation-exchange membrane on the cathode side. The second is a concentration (C) chamber partitioned with a cation exchange membrane on the anode side and an anion-exchange membrane on the cathode side. Saline water is desalinated in the D chamber and is concentrated in the C chamber, as a result of the electrical potential.

扩散渗析 Diffusion Dialysis

特点 Characteristics

- 扩散渗析是由AGC开发的离子交换膜工艺。
Diffusion dialysis is an original state-of-the-art ion-exchange membrane process that has been developed by AGC.
- 可以从金属表面处理工艺中所排出的含金属盐的废酸中分离和回收游离酸。
This process for diffusion dialysis enables the recovery of clean acid from waste acid that contains metal ions, such as that used in pickling or aluminum anodizing processes.
- 被回收的酸通过表面处理工艺等被再利用，可以提高酸的使用效率。
The recovered acid can again be effectively used in the above processes.
- 扩散渗析以浓度差为驱动力来促使离子移动，不需要直流电。因此，不仅运行成本低，而且装置简单，易于日常管理。
Diffusion dialysis is cost-effective because the difference between the acid concentration on both sides of the membrane is used as the driving force for acid recovery instead of electricity.



[原理]

通过隔板对设计为扩散渗析用的阴离子交换膜进行多层层积。向层积的阴离子交换膜的一侧注入废酸，在反面一侧则以对流的形式注入纯水。由于阴离子膜两侧所形成的浓度差的作用，酸从废酸液侧向纯水侧（回收酸侧）扩散移动，而含有较大价阳离子的金属盐则无法透过阴离子交换膜，因此留在渗析液一侧。这样，就可以把游离酸与金属盐分离，进行游离酸的回收。

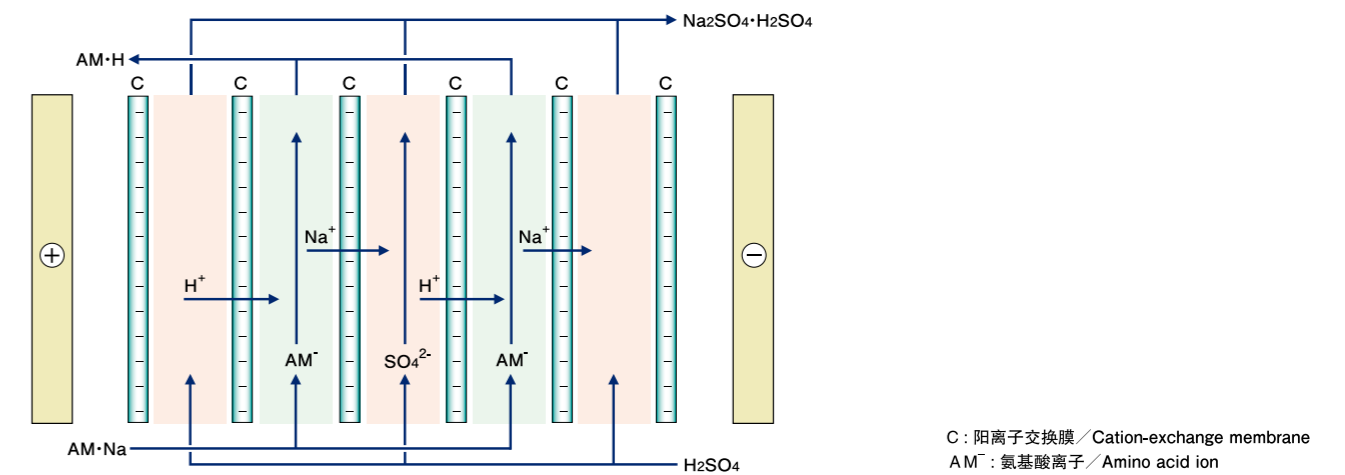
[Description]

Many anion-exchange membranes specially designed for this purpose are stacked with a thin spacer gasket inserted between each membrane. Waste acid is fed on one side of the membranes, and water is supplied to the other side of the membranes as a counterflow. Acid in the waste is recovered on the water side, through the membrane, owing to the difference in acid concentration. On the other hand, metal ions remain in the waste because of their large size and their positive valence is repelled by the anion-exchange membrane. Thus, clean acid is recovered effectively with a diffusion dialyzer.

置换电渗析 Substitutional Electrodialysis

特点 Characteristics

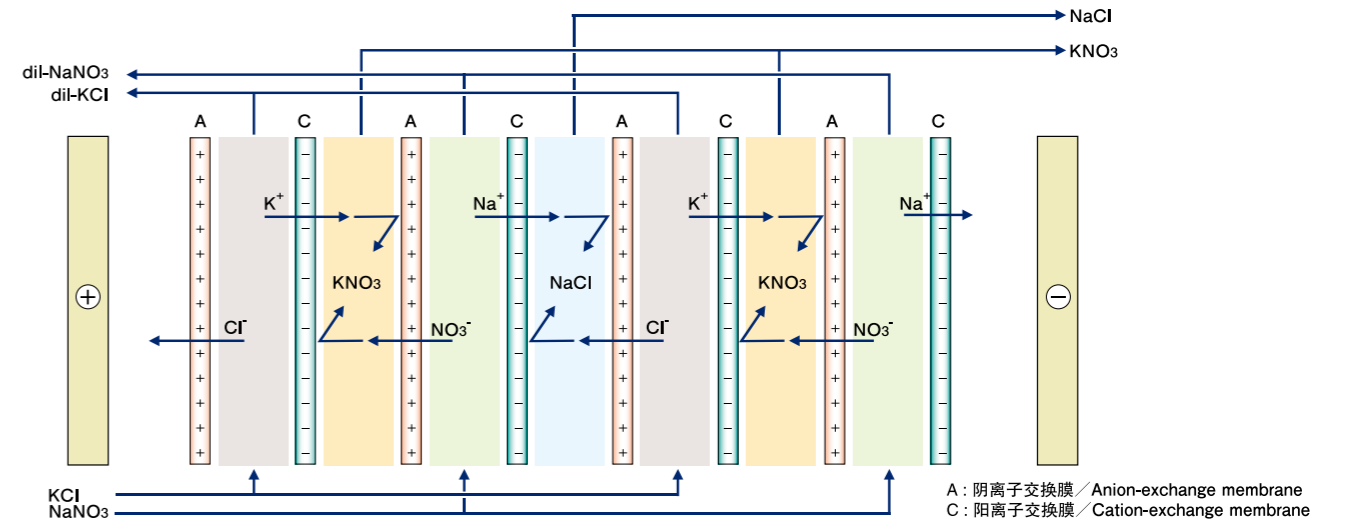
- 使用SELEMION™进行电渗析的应用工艺中，有一种为置换电渗析法。通过将反离子置换成酸或者碱，可以从中性盐中制取酸衍生物和碱衍生物。通常用于氨基酸、各种有机酸及强碱性化合物的制造。
Substitutional electro dialysis is an applied electro dialysis process. This process enables the manufacture of an organic acid or base derivative from a corresponding salt form by replacing the counter ions with hydrogen ions or hydroxide ions.



双重置换电渗析 Double Substitutional Electrodialysis

特点 Characteristics

- 通过电渗析，在两种化合物之间进行反离子交换。由于生成物中不会混入原料，因此无需结晶析出和分离。能够实现生成物的同时浓缩。
Double substitutional electro dialysis exchanges counter ions between two ionic chemicals. In this process, no additional purification process such as crystallization is necessary and simultaneous concentration is also possible.



SELEMION™应用例

Application of SELEMION™

应用例1：电渗析脱盐/浓缩 Electrodialysis Desalination/Concentration

电渗析脱盐作为一般的离子交换膜工艺，被广泛应用于多种领域。

Electrodialysis desalination is the most popular ion-exchange membrane process and is used in various fields such as the following:

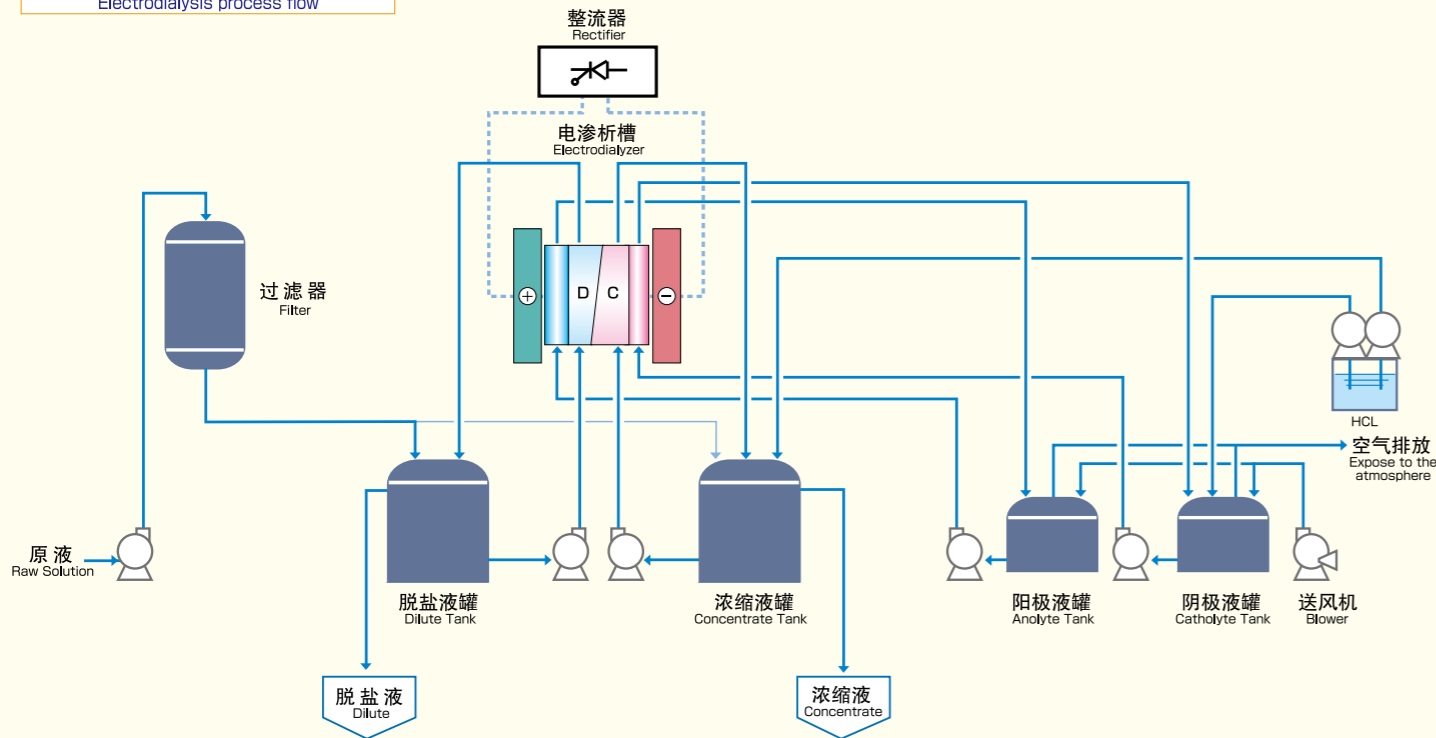
- 海水浓缩制盐
Table salt production from seawater
- 各种工艺废水的脱盐再利用
Desalination and reclaiming of wastewater in various industries
- 井水脱盐脱氮制造纯净水
Desalination and nitrate removal for tap water
- 各种食品脱盐
Desalination in the food industry
- 活性污泥废水的脱盐再利用
Desalination of wastewater from an activated sludge process
- 垃圾焚烧灰处理厂渗出水的脱盐
Desalination of leachate from a landfill site



DW-3E型(Type DW-3E)

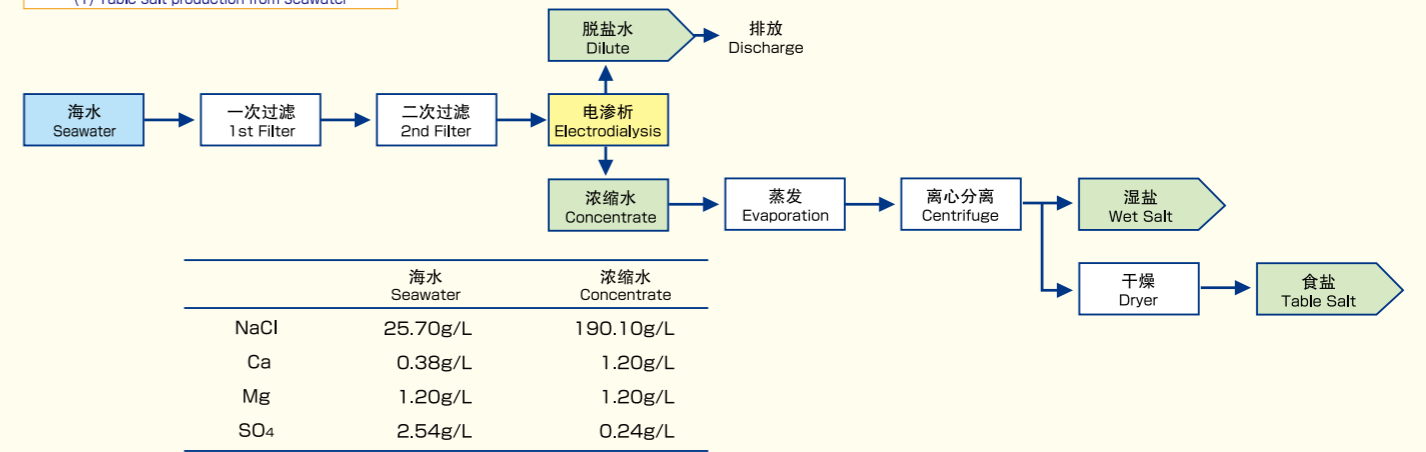
电渗析工艺流程图例

Electrodialysis process flow



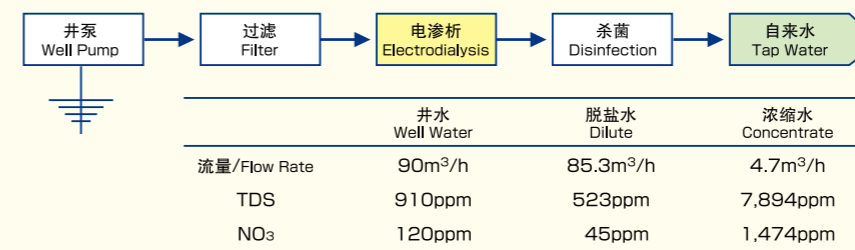
例1：食盐制造(海水浓缩)

(1) Table salt production from seawater



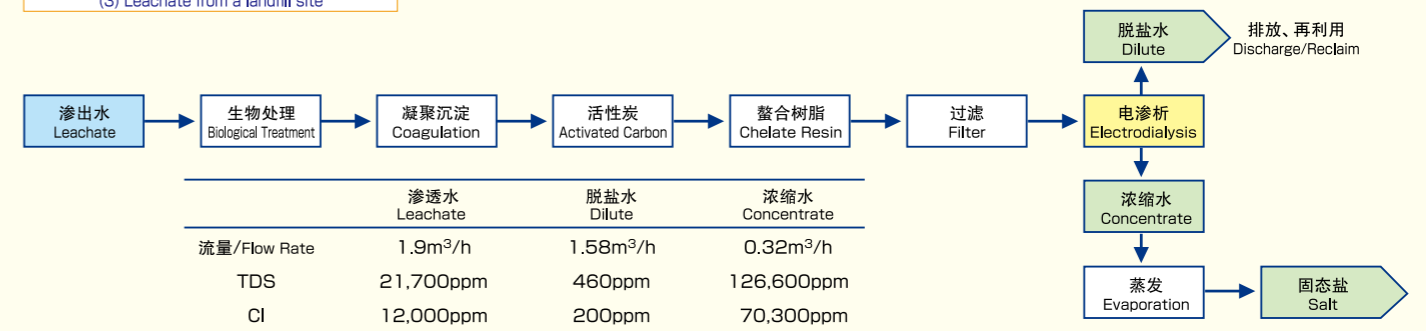
例2：井水脱氮

(2) Nitrate removal for tap water



例3：垃圾焚烧灰处理厂渗出水

(3) Leachate from a landfill site



应用例2：扩散渗析酸回收 Diffusion Dialysis Acid Recovery

扩散渗析酸回收是由AGC开发并实现商业化的工艺。

该工艺不使用电来驱动离子移动，因此工艺简单，易于操作和管理。

An original diffusion dialysis acid recovery process has been developed by AGC.

This diffusion dialysis process is simple and easy to perform because the acid concentration difference is utilized as the acid transfer driving force instead of electricity.

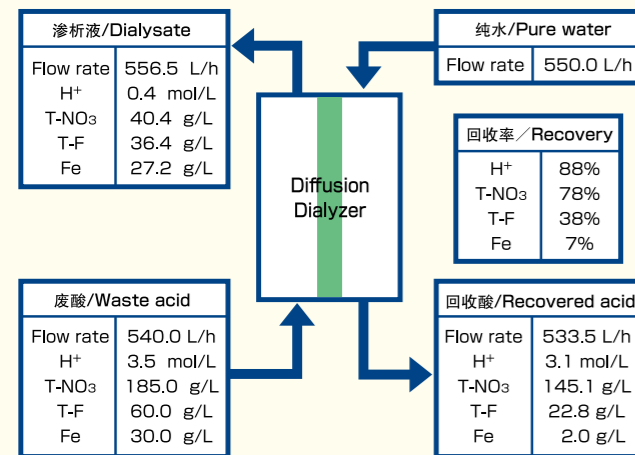
- 铝合金窗框表面处理液
Aluminum sash anodizing acid
- 电解电容器铝箔腐蚀液
Aluminum foil etching acid
- 钢板表面处理液
Steel surface treatment acid
- 不锈钢表面处理液
Stainless steel surface treatment acid
- 贵金属工业
Noble metal industries
- 各种金属工业
Various metal industries
- 其他 酸的分离和回收
Other acid separation or recovery processes



T-4型 (Type T-4)

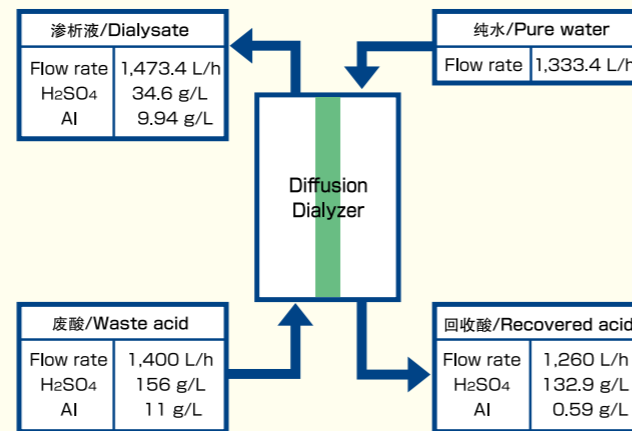
例1：不锈钢废酸的氟硝酸回收

(1) Acid recovery from steel surface treatment acid



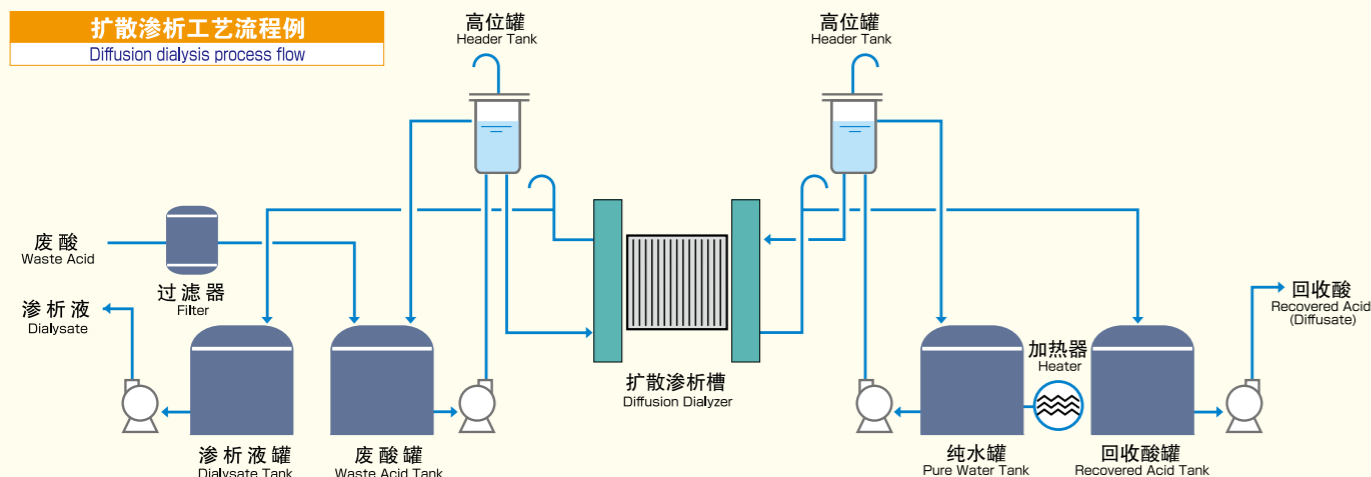
例2：耐酸铝电解液的硫酸回收

(2) Acid recovery from aluminum sash anodizing acid



扩散渗析工艺流程例

Diffusion dialysis process flow



应用例3：电渗析酸回收 Electrodialysis Acid Recovery

电渗析酸回收是使用由AGC开发的氢离子选择性透过膜进行酸回收的工艺。

通过使用能够选择性地透过氢离子且金属离子难以透过的氢离子选择性透过膜，

实现了利用电渗析原理进行酸的分离及浓缩回收。

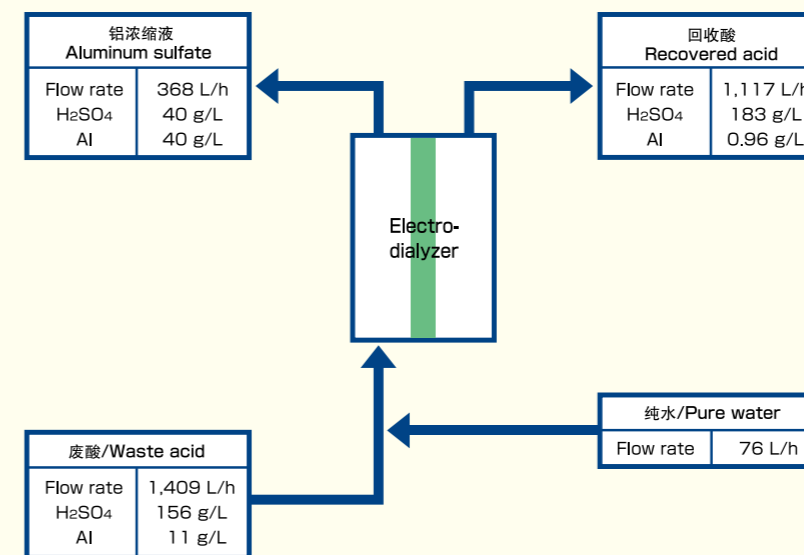
An electro dialysis acid recovery process has been developed by AGC.

A hydrogen-ion-selective membrane has been newly designed for this process.

The membrane makes possible to recover a concentrated acid from a waste acid containing metal ions.

例：耐酸铝电解液的硫酸回收

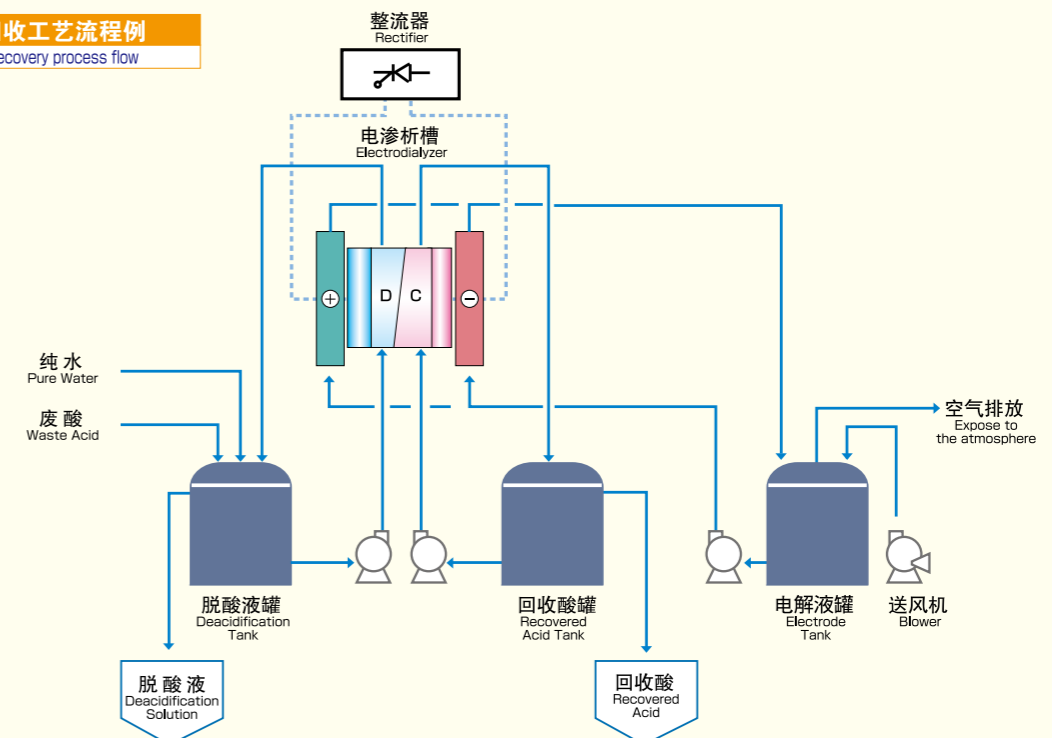
Acid recovery from aluminum sash anodizing acid



CH-4型 (Type CH-4)

电渗析酸回收工艺流程例

Electrodialysis recovery process flow



实验用电渗析装置、扩散渗析装置

Dialyzers for Lab-Scale Tests

电渗析 Electrolyzers

这种实验用电渗析装置在体型小巧的电渗析槽上附带了罐、泵及整流器。
同时，装有离子交换膜，可方便地进行电渗析实验。
获得的数据可直接放大，以作为有效的工业化设备设计用资料。
提供“CH-O”和“DW-Lab”两种不同尺寸的产品供客户选择。

The CH-O complete set and DW-Lab are miniaturized electrolyzer units to be used in the laboratory. These sets contain an electrolyzer, rectifier, pumps, tanks and all the accessories necessary to start experiments with SELEMION™ ion-exchange membranes. These units are designed to easily obtain reliable data that can be utilized as the design basis for a full-scale plant.



CH-O渗析槽
CH-O electrolyzer



CH-O组件(成套)
CH-O unit (complete set)



DW-Lab

装置规格 Specifications

型号 Type	CH-O组件 CH-O unit	DW-Lab
膜尺寸 Membrane size	mm 160×280	80×130
膜有效面积 Effective membrane area	m ² /片 m ² /piece 0.021	0.003
标准膜组装对数 Cell pairs	对 Pairs 10	5
阳极板材质 Anode plate	— 镀铱钛板 Ir coated Ti Plate	镀铱钛板 Ir coated Ti Plate
阴极板材质 Cathode plate	— SUS316	SUS316
ED组件尺寸 ED unit size	mm 650(W)×500(D)×1300(H)	300(W)×200(D)×400(H)
ED组件重量 ED unit weight	kg 50	6.0
整流器输出 Rectifier output	— DC 35V / 10A	DC 18V / 2A
整流器输入电源 Rectifier input power	— AC 单相 100[V] 50/60[Hz] 100 [V] AC, single phase, 50/60 [Hz]	AC 单相 100[V] 50/60[Hz] 100 [V] AC, single phase, 50/60 [Hz]
整流器尺寸 Rectifier size	mm 235(W) × 425(D) × 160(H)	107(W)×305(D)×134(H)
整流器重量 Rectifier weight	kg 17	5.0
各附属罐容量 Attached tank capacity	L 3.0	0.40
泵 Pump	— 磁力泵 Magnetic drive pump	磁力泵 Magnetic drive pump
泵输入电源 Pump input power	— AC 单相 100[V] 50/60[Hz] 100 [V] AC, single phase, 50/60 [Hz]	AC 单相 100[V] 50/60[Hz] 100 [V] AC, single phase, 50/60 [Hz]
标准流量计 Standard flow meter	L/h 60 ~ 600	未附带 Not attached

※电渗析本体部分可单独销售。
※The electrolyzer can be sold without unit accessories upon request.
※特殊用途(酸回收)的实验设备也可以定制。
※We will also accept the remodeling work for special purposes (acid recovery, etc).

扩散渗析 Diffusion Dialyzer

“T-O”是小型化的扩散渗析槽。
可进行AGC开发的扩散渗析工艺的实验。
获得的数据可直接放大，以作为有效的工业化设备设计用资料。
T-O is a miniaturized diffusion dialyzer for experiments on AGC diffusion dialysis in the laboratory. This unit is designed to easily obtain reliable data that can be utilized for the design basis of a full scale plant.



T-O 渗析槽
T-O diffusion dialyzer

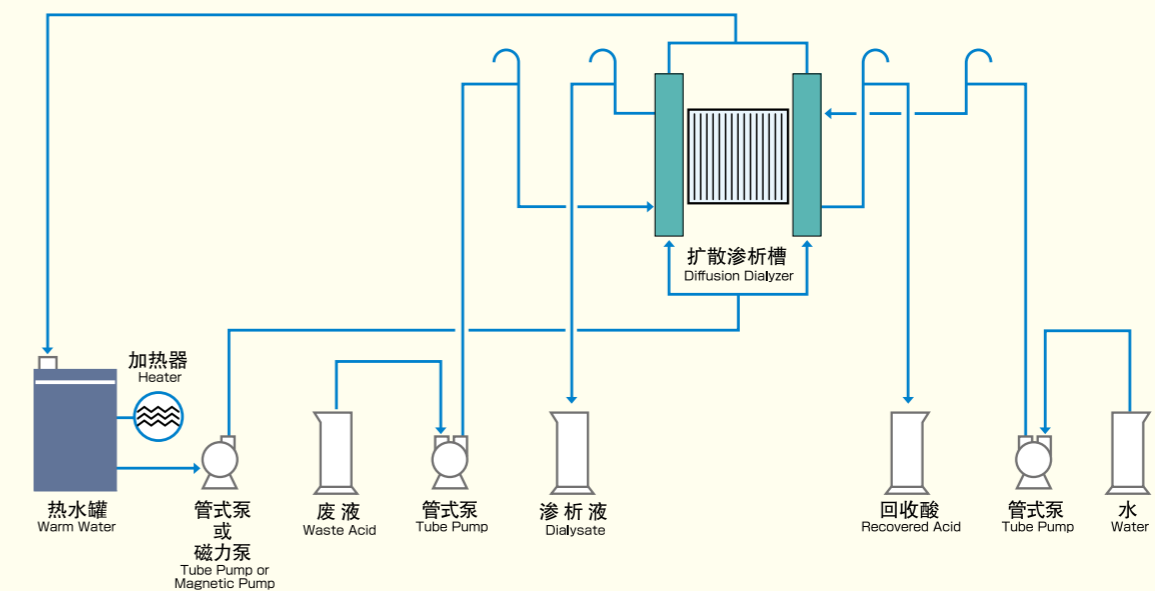
装置规格 Specifications

型号 Type	T-O渗析槽 T-O diffusion dialyzer
膜尺寸 Membrane size	mm 160 × 240
膜有效面积 Effective membrane area	m ² /片 m ² /piece 0.017
标准膜组装片数 Membrane sheets	片 Sheets 19
标准处理流量 Processing capacity	L/h 0.17 ~ 0.68

※“T-O”只销售主体,但也可根据需求销售配套设备。
※The T-O diffusion dialyzer is basically sold without accessories. Accessories can be sold upon request.

扩散渗析实验流程例

Examination of diffusion dialysis flow



【实用电渗析槽·扩散渗析槽】一览表

Commercial-Scale Dialyzers

规模 Size	型号 Type	型号 / Dialyzer Type		电渗析槽 Electrodialyzer					扩散渗析槽 Diffusion Dialyzer
				DW	DS	DB	CS	CH	T
		用途 Purpose		普通脱盐 General Desalination	高度脱盐 High-Level Desalination	自来水 Tap Water	浓缩 Concentration	酸回收 Acid Recovery	酸回收 Acid Recovery
小型 Small	1型 Type 1	膜尺寸/Membrane size	mm	180×550		180×550			180×550
		膜面积/Membrane area	m ²	0.099		0.099			0.099
		膜有效尺寸/Effective membrane size	mm	130×390		110×380			130×390
		膜有效面积/Effective membrane area	m ²	0.051		0.042			0.051
		最大对数/Maximum cell pairs	-	200		100			100 (sheets)
中型 Medium	3型 Type 3	膜尺寸/Membrane size	mm				550×1,120		550×1,120
		膜面积/Membrane area	m ²				0.616		0.616
		膜有效尺寸/Effective membrane size	mm				450×860		470×900
		膜有效面积/Effective membrane area	m ²				0.387		0.423
		最大对数/Maximum cell pairs	-				200		220 (sheets)
	3E型 Type 3E	膜尺寸/Membrane size	mm	550×1,120	350×2,000				
		膜面积/Membrane area	m ²	0.616	0.700				
		膜有效尺寸/Effective membrane size	mm	470×840	250×1,700				
		膜有效面积/Effective membrane area	m ²	0.395	0.425				
3F型 Type 3F	膜尺寸/Membrane size	mm	550×1,120						
	膜面积/Membrane area	m ²	0.616						
	膜有效尺寸/Effective membrane size	mm	470×840						
	膜有效面积/Effective membrane area	m ²	0.395						
大型 Large	4型 Type 4	膜尺寸/Membrane size	mm	1,120×1,120		540×2,240		1,120×1,120	1,120×1,120
		膜面积/Membrane area	m ²	1.254		1.210		1.254	1.254
		膜有效尺寸/Effective membrane size	mm	1,020×838		400×1,960		1,020×890	1,020×900
		膜有效面积/Effective membrane area	m ²	0.855		0.784		0.908	0.918
		最大对数/Maximum cell pairs	-	1,000		330		720	1,200 (sheets)
	5型 Type 5	膜尺寸/Membrane size	mm				1,120×2,300		1,120×2,300
		膜面积/Membrane area	m ²				2.576		2.576
		膜有效尺寸/Effective membrane size	mm				920×1,940		920×1,940
		膜有效面积/Effective membrane area	m ²				1.785		1.785
		最大对数/Maximum cell pairs	-				2,400		2,250 (sheets)

本产品目录中记载的规格可能未经预告而发生变更，敬请谅解。
The specifications published in this catalog are subject to change without notice.



工艺排水脱盐 DB-4型 电渗析槽 (320对) / 770m²
DB-4 electro dialyzer (320 cell pairs) / 770m²



废酸回收 T-5C型 扩散渗析槽 (1,720片) / 4,430m²
T-5C diffusion dialyzer (1,720 sheets) / 4,430m²



海水浓缩制盐 CS-5型 电渗析槽 (1,800对) / 9,280m²
CS-5 electro dialyzer (1,800 cell pairs) / 9,280m²

SELEMION™的标准销售尺寸

Standard Sizes of SELEMION™

● SELEMION™ 销售 16×28、18×55、55×112、112×112[cm] 共 4 种尺寸。其他尺寸请另行咨询。
The standard sizes of SELEMION™ are 16x28, 18x55, 55x112 and 112x112[cm]. For other sizes, please contact us.

● 可从 1 片起购买。
Minimum order size : 1 unit

使用原液的注意事项

Precautions for applying solution on SELEMION™

● 脂类成分、SS 成分、表面活性剂、强氧化性物质、离子化高分子有机物等会导致离子交换膜的性能降低。
Oils, suspended solids, surfactants, oxidants and ionized organic polymers may cause a decrease in the efficiency of the membrane.

● 原液的 PH 值请设置为中性~酸性范围。碱性原液会导致隔膜寿命降低。详情请向我们咨询。
The recommended pH is 7 or below: a pH of 5-7 is recommended. Alkaline solution may degrade the membrane. For more details, please contact us.

SELEMION™工艺订购前的流程

Ordering process



我们还承接工艺引进后的维护(去客户现场、取回)。请另行商谈。
We can carry out maintenance at your site or our workshop.

E-mail: selemion.agc@agc.com Phone: +81-(0)43-350-3401 Fax: +81-(0)43-350-3383

咨询时,请在可答范围内填写下述项目后与我们联系。
Please fill out this questionnaire and send us your inquiry.

● 客户名称 (必填) Customer's name (Required)

● 国家名称 (必填) country (Required)

● 所属企业或单位名称 (必填) Company or organization (Required)

● 联络方式 (电话号码、E-mail 地址) (必填) Contact information (E-mail address or phone number) (Required)

● 离子交换膜的使用目的 (必填) Intended purpose of ion-exchange membrane (Required)

● 请选择咨询项目 Please check your type of inquiry

- 想要讨论 SELEMION™ 的工艺。 SELEMION™ process inquiry
- 想要选择及购买 SELEMION™ 或渗析槽组件。 SELEMION™ purchase inquiry
- 想要进行技术方面的咨询。 Technical inquiry
- 其他咨询。 Other inquiries

● 咨询内容 Content of inquiry

● 其他使用条件 (原液的水质、处理液的目标水质、处理量、温度等)

Information (composition of raw solution or target solution, processing capacity, temperature, etc.)

* 可将本页复制后填写,通过传真或 E-mail 发送给我们。
Handwritten inquiries are also possible. Please send us a copy by Fax or E-mail.

※在咨询时填写的个人信息,仅用于回答客户的咨询。
有关客户个人信息使用的详细说明,请浏览我公司主页。
AGC ENGINEERING will only use personal information for the purpose of responding to inquiries made by the customers. For more information about the customer personal information, please refer to our website.

AGC Is the Leader in Ion-Exchange Membranes.

AGC — 离子交换膜的先驱。

AGC Has the Best Ion-Exchange Membranes in the World.

离子交换膜

Ion-Exchange Membranes

离子交换膜是一种片状成形的有机高分子材料，内含磺酸、季铵等的离子交换基。

An ion-exchange membrane is a sheet made of organic polymer materials that include a sulfonic acid group or quaternary ammonium group as an ion-exchange functional group.

根据用途，离子交换膜有很多种类，但基本上可以分为使阳离子通过的阳离子交换膜和使阴离子通过的阴离子交换膜。

Although many types of ion-exchange membranes are now available, membranes are basically classified into two categories: anion-exchange membranes and cation-exchange membranes.

阳离子交换膜中固定有带负电荷的官能基（通常是磺酸），而在阴离子交换膜中固定有带正电荷的官能基（通常是季铵），因此，与固定电荷同性的离子相斥而不能透过离子膜，只有与固定电荷异性的离子才能够通过离子膜。

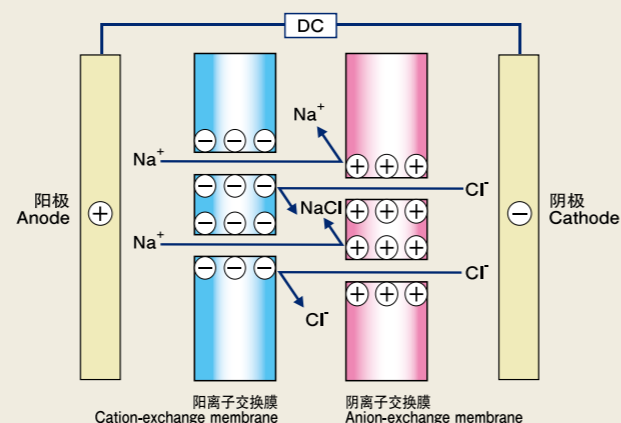
Because a negatively charged functional group is fixed inside the cation-exchange membrane, only oppositely charged cations are permitted to pass through the cation-exchange membrane. On the other hand, an anion-exchange membrane permits only anions to pass through it.

注释

离子交换膜的名称根据透过离子交换膜的离子来区分，因此，膜内的固定电荷与离子交换膜的名称所使用的电荷相反。

Note:

An ion-exchange membrane takes its name from the ions that it allows to pass through it. Therefore, the charge referent in the membrane name is the opposite of the fixed functional group charge in the membrane itself.



离子交换膜的制造方法 (阴离子交换膜)

Ion-exchange membrane manufacturing process (anion-exchange membrane)

