

Change your WATER Change your LIFE Prime Water Premium Water Ionizer





PRIME WATER PRODUCTS 11-ELECTRODES CELL FEATURES

Website : www.primewater.co.kr

FCC CE KEA



New Larger Ultra Efficient Multi-Level Electrolysis chambers

New Larger 11 Titanium/Platinum Plates

Prime Water Ionizers with Solid and Mesh plate delivers an electrical current to the water through an array of positively and negatively charged Platinum coated Titanium plates. The more the water passes in and out of the Titanium Mesh system and the greater the electrical charge to the water (especially when powered by the newer SMPS power systems) - the higher the pH (potential of Hydrogen) and the ORP (Oxidation-Reduction Potential) of the drinking water.

A mesh plate uses the same principle as the slotted plate, but improves upon it by providing cross-channeling to more evenly direct electron flow. The applied current more evenly saturates the plate, increasing the effective delivery of electrical current to create better alteration in your water. Mesh plate technology is just like the best irrigation systems

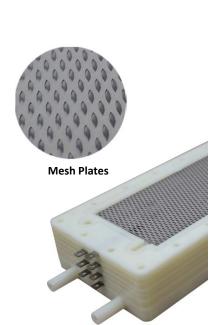


Multi-Level

125mm

165,000mm & 255.44 square inches High Performance Smart & Larger Surface Area Electrode

Prime Water Ionizers have larger 11 platinum titanium electrodes. With its 11 Mesh large platinum titanium plates, it is up for the job at task producing the highest -ORP for prolongs amounts of use making it the best residential water ionizer out there.



Surface area

165,000

 \mathbf{mm}^2

255.44

Square inches

60mm

Max Large

Platinum Titanium Plates

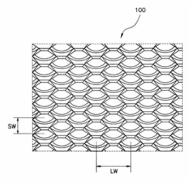
Premium Mesh Technolog

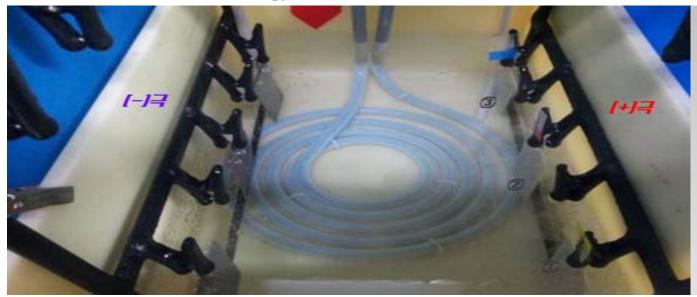
Comparison of Solid Plate Electrodes and Mesh Electrodes

According to a study (Patent Publication 2003-0093171) in order for mesh titanium electrode plates to obtain an increase of 30% in active electrode area, the mesh structure should be LW0.1-2mm SW1.0-4.5mm .

The principle of edge conductivity is well known as electrons travel better and faster along edges rather than flat surface.

Mesh plate increase edge surface area, and it conducts and distributes electrons more uniformly and more efficiently rather than flat surfaces. As the entire surface area of mesh plates act as energy distribution point, there is no concentration of energy to cause burning effect or oxidative corrosion as in solid plates. Hence it is more effective in maintaining pH, ORP and activated Hydrogen. Besides, it is evident that mesh technology creates better water flow.





Prime Water Electrodes

DURABILITY

PRIME WATER ELECTRODES Internal Durability Test Conducted

According to the analysis of the test results: The tests were performed according to standard test methodology. After each test was taken according to the different flow rates and comparing the analysis to a range of standards, even when not using the standard amounts, water cell life was ten years

- TEST conditions: H2SO4 0.5mol / I on the electrolyte solution 40 °C, 2A / d m² is current, 240hr electrolysis
- TEST Quantity: 3 varieties [Heat 1, Heat 2 times, Brazing products]
- TEST Date: 1/10 08:00
- TEST End Date: 20.01 08:00
- TEST progress results: 240hr after all

n= n= n= n= n= n=	1 Pt 1 = 2 Pt 1 = 3 Pt 1 = 4 Pt 1 = 5 Pt 1 = 6 Pt 1 = 7 Pt 1 = 8 Pt 1 = 9 Pt 1 =	0.22 0.18 0.20 0.19 0.14 0.18 0.21 0.20 0.21	0 0 0 8 0 5 8 0 5
C.O. Ran Num Min. Max Mea	idard deviat .V. (%)	0.190 0.024 12.85 0.08 9.0 0.14 0.14 0.22 20	

inin: roading	
Max. reading	0
Measuring time	0
Operatior:	



Prime Water Electrodes

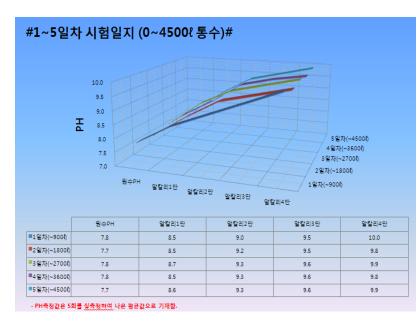
Performance

NO	Data	Descriptions	Comments
1	Product	Electrolytic Alkaline Water Generator (Prime 1301 – 13Plates)	
2	Test Period	April 11, 2014 to March 27, 2011 (40 days)	Daily Journal kept
3	Total Discharge	36,000 liters (Four people using 10 L per day on average: about 10 years worth)	Standard - 360 day year
4	Basis of usage life	About 10 years	
5	Water pressure	2.5 Kg/m²	Water pressure from unit
6	Water flow rate	2.5 l/min	Alkaline water:1.5l/min Acidic water:1.0l/min
7	This method	Every day five samples were taken to test pH and the average was taken down.	
8	This started cleaning method	The machine was used for 30 min. to produce alkaline water after which the machine went into cleaning cycle then tested.	
9	Testing machine	pH-meter Model:HM-20P Jejo Co.: TOA(Japan)	

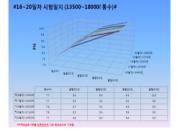


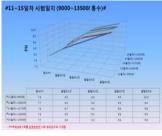
Prime Water Electrodes

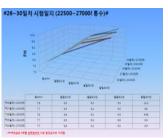
Performance

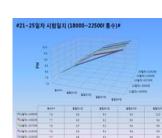


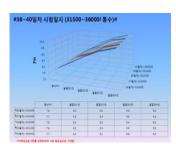
Electrolytic Performance 40 days test result

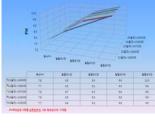


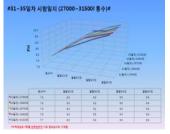














Prime Water Electrodes

SAND BLASTING

Plates Sand Blasting Technology

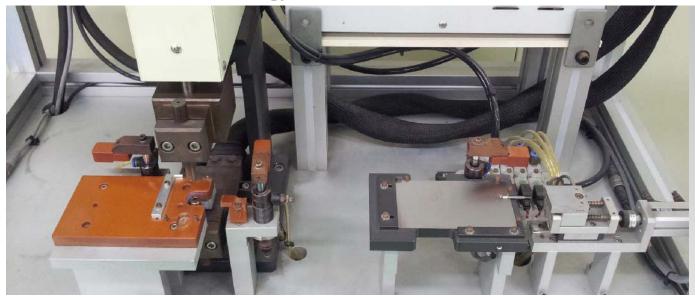
Automatic Blast Guns & Traverse Moving System

In order to improve the performance of the Anode Oxide Coating between the metal and the substrate is closely a very important factor. Therefore, the Anode Oxide Coating system, it must be strictly the substrate pretreatment, such as degreasing, sand blasting and etching, etc.

Roughened titanium substrate including blasting and etching in two steps, wherein spray Sand is caused by Macro rough.

Generally, considered: Blasting can remove the surface oxide film of titanium, exposing fresh Surfaces; Sand rough will make the surface of the compressive stress in the state is conducive surface coating and the substrate binding.





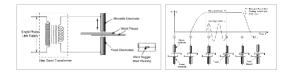
SPOT WELDING

Spot Welding Technology

Spot Welding

In resistance spot welding, two or more sheets of metal are held between electrodes through which welding current is supplied for a defined time while force is exerted on the work pieces. The principle is illustrated in the figure on the left below.

The welding cycle starts with the upper electrode moving and contacting the work pieces resting on lower electrode which is stationary. The work pieces are held under pressure and only then heavy current is passed between the electrodes for a preset time. The area of contact between metals is raised to welding temperature due to the flow of current through the contact surfaces of the work pieces. Pressure between the two electrodes squeezes the hot metal together thus completing the weld. The weld nugget formed is allowed to cool under pressure and then pressure is released. This total cycle is known as resistance spot welding cycle and is illustrated in the figure on the right below.









PRODUCTION

Plate Production Process (1/2)



Press Titanium shape processing in the press



Electrode machining Electrode cutting and rolling process



Washing Removal of oil and grease from media and cut pieces



Spot Welding Welding of the metal terminal to the electrode.



Sanding Sand blasting process to improve plating adhesion



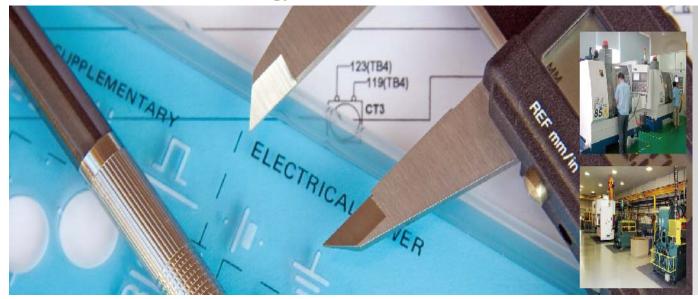
Racking Titanium electrodes loaded onto plating jig



Skimmer Removal of any surface grease or oil



Etching Removal of oxidation from titanium surface



PRODUCTION

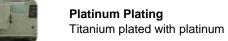
Plate Production Process (2/2)



Etching Removal of oxidation from titanium surface



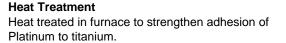
Activator Surface of titanium activated to improve plating adhesion





Drying Water is removed from the surface of the platinum



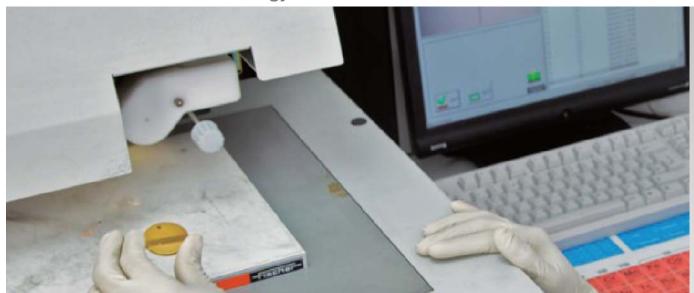




Shipping Inspection Reliability and appearance Inspection / Certificate of Inspection issued



Packing/Shipping
Packing/Shipping



PLATING MEASURING

Platinum Plating Measuring Technology

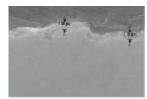
Energy dispersive x-ray fluorescence analysis is a method for measuring the thickness of coatings and for analyzing materials.

It can be used for the qualitative and quantitative determination of the elemental composition of a material sample as well as for measuring coatings and coating systems. The analysis uses methods that are well established in both laboratory and industrial environments and can be readily applied using modern equipment.

Platinum plating measuring equipment offers some outstanding advantages.

It covers virtually all technically relevant elements and works non-destructively and with no contact with the sample. Measuring times range in the seconds and takes rarely longer than one minute to complete.

Measurements can be completed quickly and usually without extensive sample preparation. With our measuring equipment, it is possible to measure both thickness and chemical composition of homogeneous materials and coatings. Even traces of harmful substances can be detected in a very wide range of samples.



						Note of		
n=	1	Pt	1	-	0.158	um		
n=	2	Pt	1	=	0.162	um		
n=	3	Pt	1	-	0.163	um		
n=	4	Pt	1	-	0.168	um		
n=	5	Pt	1	=	0.169	um		
Mea	1						0.164	um
Stan		dev	iat	tion			0.005	
C.O.							2.91	
Rang		-,					0.012	
Number of readings							5	state
Min. reading							0.158	1100
Max.							0.169	
	·Jaa						0.103	Jun



PURITY PLATINUM 99.99%

Purity of Platinum 99.99%

Platinum has great value.

Platinum is among the finest, purest and rarest precious metals on earth.

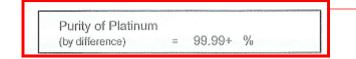
This type of electrode is ideal for the production of chlorine because its long life, high efficiency and stability at low voltages allows it to reduce running costs.

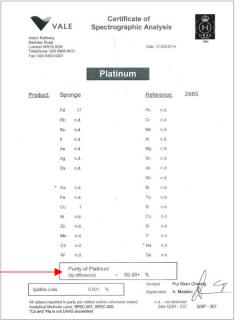
Dimensionally stable Titanium anode are the state of art as anodes for a wide range of electrochemical applications. The excellent stability of titanium against surface and pitting corrosion make it dimensionally stable permitting dramatic innovations in equipment design, operation conditions and energy consumptions of many electrolysis processes. The application of coatings containing mixed metal oxides (MMO) such as RuO2, IrO2, TiO2 and Ta2O5 allows it to reduce remarkably the over potential for anodic chlorine and anodic oxygen evolution.

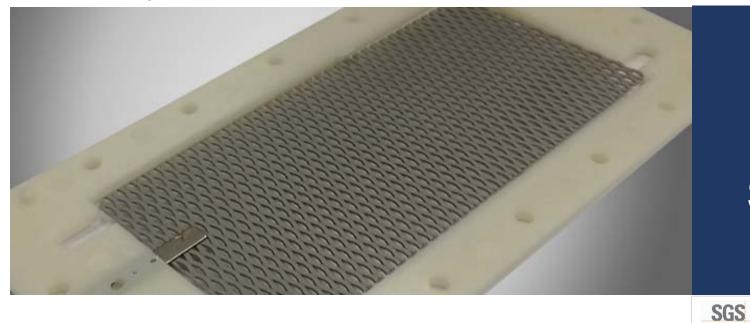
Additionally the excellent stability of the MMO coated titanium anode consequently do not contaminate

the electrolysis system, improving the products purity and maintenance costs.

DSE (anodes) are generally used to produce chlorine in saline solution.







CLEAN & SAFETY

Safety Platinum Titanium

		TEST RES	SULTS	
TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
н	%	-	0.003	KS D 2532 : 2007
0	%	-	0,06	KS D 2533 : 2009
N	%	-	0.002	KS D 2530 : 2007
C	%	-	0.02	KS D 6000 : 2004
Fe	%	-	0.04	KS D 6000 : 2004(ICP)
Ti	%	-	remainder	KS D 6000 : 2004
Pt	%	-	0,86	KS D 6000 : 2004(ICP)
USAGE : QUALITY CONTROL				
NOTE: 1. The test results on this to the customer and KTR do n 2. This test report shall not outside the scope of its def	ot guarantee the of be used for public	quality of all p	products of the custom	er.

KTR(Korea Testing & Research Institute) Test Report

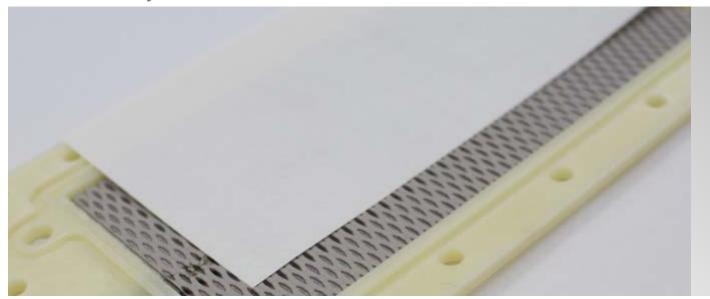
Sample Description : Plactrosis Imm Nu/Par Nu : N/A Materiai : Tlanium Service : Tlanium Service : Slow Service <	report	O. F690101/LF-	CTSAYAA1	3-27633 Issued Date: 2013. 0	6.12 Pag	e 2 of 4
Sample Description : Plazina Immo ND/Par ND, : N/A Materiai : ViXi Stary Metala : ViXi Test Rem Unit Test Method 0.8 Camium IG(2) mgka With reference to IC 622112006, ICP 5 N.I. Hexaderic Tommun IG(2) mgka With reference to IC 622112006, ICP 5 N.I. Hexaderic Tommun IG(2) mgka With reference to IC 622112006, ICP 5 N.I. Hexaderic Tommun IG(2) mgka With reference to IC 622112006, ICP 2 N.I. Immodering Horizonta mgka With reference to IC 622112006, ICP 5 N.I. Immodering Horizonta mgka With reference to IC 622112006, ICP 5 N.I. Immodering Horizonta mgka With reference to IC 62211200, ICP 5 N.I. Test Menta mgka With reference to IC 62211200, ICP 6 N.I. Parabornobiphenyi mgka With reference to IC 62211200, ICP 6 N.I. Parabornobiphenyi mgka With refere	Sample No. ; AYAA13-27633.001					
Test Items Unit Test Method MDL Res Cadmium (Cd) mg/kg With references IEC 622312008, CP 0,5 N.I. Lead (Pb) mg/kg With references IEC 622312008, CP 5 N.I. Mexuary (Hg) mg/kg With references IEC 622312008, CP 2 N.I. Mexuary (Hg) mg/kg With references IEC 622312008, CP 2 N.I. Mexuary (Hg) mg/kg With references IEC 622312008, CP 2 N.I. Test Menne Mith references IEC 62231208, CP.M.S. - Negative State Sta	Sample Description tem No./Part No.	: N/A				
Cadmium (Cd) mptg With references to IEC 4221 2008, CP 0.6 N. Lead (PB) mptg With references to IEC 4221 2008, CP 6 N. Mexauging (Pb) mptg With references to IEC 4221 2008, CP 2 N.I. Mexauging (Pb) mptg With references to IEC 4221 2008, CP 2 N.I. Havaadeet Chronism (Cr VI) By bailing ** With references to IEC 4221 2008, CP 2 N.I. Hame Edetardants-PBBs-PBDEs Test Method MOL Res Negative PBBs-PBDEs 1000000000000000000000000000000000000	leavy Metals					
Lad (Fb) mpkg With references to IEC 0231:2008. CP 6 NI. Mexacy Hej mpkg With references to IEC 0231:2008. CP 2 NI. Hexacyler Chromism (Cr VI) By boling ™ With references to IEC 0231:2008. CP 2 NI. Wate extraction With references to IEC 0231:2008. CP 5 NI. Iame Retardants-PBBs/PB0Es Test Method MDL Res Tatel Terms Unit Test Method MDL Res Disconsbiphenyi mpkg With reference to IEC 0231:2008. GC-MS 5 NI. Teatomobiphenyi mpkg With reference to IEC 0231:2008. GC-MS 5 NI. Teatomobiphenyi mpkg With reference to IEC 0231:2008. GC-MS 5 NI. Teatomobiphenyi mpkg With reference to IEC 0231:2008. GC-MS 5 NI. Headstornobiphenyi mpkg With reference to IEC 0231:2008. GC-MS 5 NI. Headstornobiphenyi mpkg With reference to IEC 0231:2008. GC-MS 5 NI. Headstornobiphenyi mpkg With re	Test Items		Unit	Test Method	MDL	Results
Mentary (Hg) mg/tg With reference to IEC 6221:2008. (CP 2 NL Hexadelic Chromitm (C VI) By boiling ** With reference to IEC 6221:2008. (CP 2 NL Hame Retardants-PBBs/PBDEs ** With reference to IEC 6221:2008. (CP 2 NL Hame Retardants-PBBs/PBDEs ** With reference to IEC 6221:2008. (CP 4 NL Rene Retardants-PBBs/PBDEs mg/tg With reference to IEC 6221:2008. (CALS 5 NL Text Membornobiphenyl mg/tg With reference to IEC 6221:2008. (CALS 5 NL Textonobiphenyl mg/tg With reference to IEC 6221:2008. (CALS 5 NL Textonobiphenyl mg/tg With reference to IEC 6221:2008. (CALS 5 NL Textonobiphenyl mg/tg With reference to IEC 6221:2008. (CALS 5 NL Textonobiphenyl mg/tg With reference to IEC 6221:2008. (CALS 5 NL Heitabornobiphenyl mg/tg With reference to IEC 6221:2008. (CALS 5 NL Heitabornobiphenyl mg/tg With reference to IEC 6221:2008. (CALS	Cadmium (Cd)		mg/kg	With reference to IEC 62321:2008, ICP	0.5	N.D.
Hexavaler Chromism (Cr.VI) By boling ** With reference to IEC 822212008 - Negative relations Iame Retardants-PBBs/PBDEs ** With reference to IEC 82212008 - Negative relations Mondomrobiphenyi mghg With reference to IEC 822122008, GC-MS 6 Ni.1 Disromobiphenyi mghg With reference to IEC 822122008, GC-MS 6 Ni.1 Teatomobiphenyi mghg With reference to IEC 822122008, GC-MS 6 Ni.1 Teatomobiphenyi mghg With reference to IEC 822122008, GC-MS 6 Ni.1 Teatomobiphenyi mghg With reference to IEC 822122008, GC-MS 6 Ni.1 Teatomobiphenyi mghg With reference to IEC 822122008, GC-MS 6 Ni.1 Headomobiphenyi mghg With reference to IEC 82212008, GC-MS 6 Ni.1 Headomobiphenyi mghg With reference to IEC 82212008, GC-MS 6 Ni.1 Headomobiphenyi mghg With reference to IEC 82212008, GC-MS 6 Ni.1 Devaltomobiphenyi mghg With reference to IEC 82212008, GC-MS	Lead (Pb)		mg/kg	With reference to IEC 62321:2008, ICP	5	N.D.
Name Unit Test Method MOL Res Tame Externations Unit Test Method MOL Res Mendiomonoliphenyl mg/kg With reference to EIC 0221 2006, GC-MS 5 N.N. Tatromobiphenyl mg/kg With reference to EIC 0221 2006, GC-MS 5 N.N. Tatromobiphenyl mg/kg With reference to EIC 0221 2006, GC-MS 6 N.N. Testatomobiphenyl mg/kg With reference to EIC 0221 2006, GC-MS 6 N.N. Testatomobiphenyl mg/kg With reference to EIC 0221 2006, GC-MS 6 N.N. Testatomobiphenyl mg/kg With reference to EIC 0231 2008, GC-MS 6 N.N. Hestatomobiphenyl mg/kg With reference to EIC 0231 2008, GC-MS 6 N.N. Nonahomobiphenyl mg/kg With reference to EIC 0231 2008, GC-MS 6 N.N. Octatomobiphenyl mg/kg With reference to EIC 0231 2008, GC-MS 6 N.N. Devolonobiphenyl mg/kg With reference to EIC 0231 2008, GC-MS 6 N.N.	Mercury (Hg)		mg/kg	With reference to IEC 62321:2008, ICP	2	N.D.
Image Retardants-PBBs/PBDEs Test Items Unit Test Method MDL Res Disomobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Disomobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Tatoromobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Tatoromobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Pertatoromobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Pertatoromobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Pertatoromobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Hashtomobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Vanatoromobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Deabtomobiphenyi mglg With reference to IEC 623112008, GC-MS 6 NI. Deabtomobiphenyi mglg With reference to IEC 623112008, GC-MS				With reference to IEC 62321:2008	-	Negative
Decomplipheny! mp1g. With meterons to IEC 6221 2020, G-MS 6 N1. Tetratomolpheny! mp1g. With references to IEC 6221 2020, G-MS 6 N1. Tetratomolpheny! mp1g. With references to IEC 6221 2020, G-MS 6 N1. Tetratomolpheny! mp1g. With references to IEC 6221 2020, G-MS 6 N1. Headomolpheny! mp1g. With reference to IEC 6221 2020, G-MS 6 N1. Headomolpheny! mp1g. With reference to IEC 6221 2020, G-MS 6 N1. Headomolpheny! mp1g. With reference to IEC 6221 2020, G-MS 6 N1. Octabromolpheny! mp1g. With reference to IEC 6221 2020, G-MS 6 N1. Octabromolpheny! mp1g. With reference to IEC 6221 2020, G-MS 6 N1. Decabromolpheny! mp1g. With reference to IEC 6221 2020, G-MS 6 N1. Decabromolpheny! mp1g. With reference to IEC 6221 2020, G-MS 6 N1. Decabromolpheny! mp1g. With reference to IEC 6221 2020, G-MS 6 N1. <th>Test Items</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Test Items					
Tatermotiphenyl mg/bg With references to EC 8221 2008. GC-MS 6 N. Tatasbondolphenyl mg/bg With references to EC 8221 2008. GC-MS 5 N. Peradoonodophenyl mg/bg With references to EC 8221 2008. GC-MS 5 N. Peradoonodophenyl mg/bg With references to EC 8221 2008. GC-MS 5 N. Heautonotophenyl mg/bg With references to EC 6221 2008. GC-MS 5 N. Heautonotophenyl mg/bg With references to EC 6221 2008. GC-MS 5 N. Octatormotophenyl mg/bg With reference to EC 6221 2008. GC-MS 5 N. Onabornotophenyl mg/bg With reference to EC 6231 2008. GC-MS 5 N. Decatormotophenyl mg/bg With reference to EC 6231 2008. GC-MS 5 N. Decatormotophenyl mg/bg With reference to EC 6231 2008. GC-MS 5 N. Decatormotophenyl etter mg/bg With reference to EC 6231 2008. GC-MS 5 N.			Unit		MDL	
Tetrabornobjehnyi mpkg Win reference to IEC 62321 2020, GC-MS 6 N.1 Peratornobjehnyi mpkg Win reference to IEC 62321 2020, GC-MS 6 N.1 Headornobjehnyi mpkg Win reference to IEC 62321 2020, GC-MS 6 N.1 Headornobjehnyi mpkg Win reference to IEC 62321 2020, GC-MS 6 N.1 Odabornobjehnyi mpkg Win reference to IEC 62321 2020, GC-MS 6 N.1 Odabornobjehnyi mpkg Win reference to IEC 62321 2020, GC-MS 6 N.1 Deabornobjehnyi mpkg Win reference to IEC 62321 2020, GC-MS 6 N.1 Deabornobjehnyi mpkg Win reference to IEC 62321 2020, GC-MS 6 N.1 Deabornobjehnyi mpkg Win reference to IEC 6231 2020, GC-MS 6 N.1 Deabornobjehnyi efter mpkg Win reference to IEC 6231 2020, GC-MS 6 N.1	Monobromobiphenyl			With reference to IEC 62321:2008, GC-MS	5	N.D.
Pertainworksheinin/ mg/kg With reference to EIC 6221:2008, GC-MS 6 N1 Haubtomotiphenyl mg/kg With reference to EIC 6221:2008, GC-MS 5 N1 Haubtomotiphenyl mg/kg With reference to EIC 6221:2008, GC-MS 5 N1 Oratiomotiphenyl mg/kg With reference to EIC 6221:2008, GC-MS 5 N1 Oratiomotiphenyl mg/kg With reference to EIC 6221:2008, GC-MS 5 N1 Deabtomotiphenyl mg/kg With reference to EIC 6221:2008, GC-MS 5 N1 Deabtomotiphenyl mg/kg With reference to EIC 6221:2008, GC-MS 5 N1 Deabtomotiphenyl mg/kg With reference to EIC 6221:2008, GC-MS 5 N1 Deabtomotiphenyl mg/kg With reference to EIC 6221:2008, GC-MS 5 N1	Monobromobiphenyl Dibromobiphenyl		mg/kg	With reference to IEC 62321:2008, GC-MS With reference to IEC 62321:2008, GC-MS	5	N.D. N.D.
Hauabomobiphenyl mg/kg With reference to IEC 622112008, GC-MS 5 N.I. Heptabromobiphenyl mg/kg With reference to IEC 623112008, GC-MS 5 N.I. Ocabornobiphenyl mg/kg With reference to IEC 623112008, GC-MS 5 N.I. Nonabromobiphenyl mg/kg With reference to IEC 623112008, GC-MS 5 N.I. Nonabromobiphenyl mg/kg With reference to IEC 623112008, GC-MS 5 N.I. Decabornobiphenyl mg/kg With reference to IEC 623112008, GC-MS 5 N.I. Monchornodiphenyl mg/kg With reference to IEC 623112008, GC-MS 5 N.I. Monchornodiphenyl mg/kg With reference to IEC 623112008, GC-MS 5 N.I.	Monobromobiphenyl Dibromobiphenyl Tribromobiphenyl		mg/kg mg/kg	With reference to IEC 62321:2008, GC-MS With reference to IEC 62321:2008, GC-MS With reference to IEC 62321:2008, GC-MS	5 5 5	N.D. N.D. N.D.
Haptatromobiphenyl mg/bg With reference to EC 62312020, 6C-MS 5 N.I. Odabrondsphenyl mg/bg With reference to EC 62312020, 6C-MS 5 N.I. Onabrondsphenyl mg/bg With reference to EC 62312020, 6C-MS 5 N.I. Deabrondsphenyl mg/bg With reference to EC 62312020, 6C-MS 5 N.I. Deabrondsphenyl mg/bg With reference to EC 62312020, 6C-MS 5 N.I. Deabrondsphenyl mg/bg With reference to EC 62312020, 6C-MS 5 N.I.	Monobromobiphenyl Dibromobiphenyl Tribromobiphenyl Tetrabromobiphenyl		mg/kg mg/kg mg/kg	With reference to IEC 62321:2008, GC-MS With reference to IEC 62321:2008, GC-MS With reference to IEC 62321:2008, GC-MS With reference to IEC 62321:2008, GC-MS	5 5 5 5	N.D. N.D. N.D.
Obstantmohighenyl mg/kg With reference to IEC 62321 2008, GC-MS 5 N.I. Nonakomobighenyl mg/kg With reference to IEC 62321 2008, GC-MS 5 N.I. Deastromobighenyl mg/kg With reference to IEC 62321 2008, GC-MS 5 N.I. Monotomobighenyl mg/kg With reference to IEC 62321 2008, GC-MS 5 N.I.	Monobromobiphenyl Dibromobiphenyl Tribromobiphenyl Tetrabromobiphenyl Pentabromobiphenyl		mg/kg mg/kg mg/kg mg/kg mg/kg	With reference to IEC 62321:2008, GC-MS With reference to IEC 62321:2008, GC-MS	5 6 5 5	N.D. N.D. N.D. N.D. N.D.
Nonabromobiphenyl mgkg With reference to IEC 623212008, GC-MS 5 N.I. Decadromobiphenyl mgkg With reference to IEC 623212008, GC-MS 5 N.I. Monobromobiphenyl mgkg With reference to IEC 623212008, GC-MS 5 N.I. Monobromobiphenyl mgkg With reference to IEC 623212008, GC-MS 5 N.I.	Monobromobiphenyl Dibromobiphenyl Tribromobiphenyl Tetrabromobiphenyl Pentabromobiphenyl Hexabromobiphenyl		mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	With reference to IEC 62321:2008, GC-MS With reference to IEC 62321:2008, GC-MS	5 5 5 5 5 5 5 5 5 5	N.D. N.D. N.D. N.D. N.D. N.D.
Decabromobiphenyl mg/kg With reference to IEC 62321:2008, GC-MS 5 N.I. Monobromodiphenyl ether mg/kg With reference to IEC 62321:2008, GC-MS 5 N.I.	Monobromobiphenyl Dibromobiphenyl Tribromobiphenyl Tetrabromobiphenyl Pentabromobiphenyl Hexabromobiphenyl Heptabromobiphenyl		mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	With reference to IEC 62321:2008, GC-MS With reference to IEC 62321:2008, GC-MS	5 5 5 5 5 5 5 5 5	N.D. N.D. N.D. N.D. N.D. N.D. N.D.
Monobromodiphenyl ether mg/kg With reference to IEC 62321:2008, GC-MS 5 N.	Monobromobiphenyl Dibromobiphenyl Tribromobiphenyl Tetrabromobiphenyl Pentabromobiphenyl Hexabromobiphenyl Heptabromobiphenyl Octabromobiphenyl		mgikg mgikg mgikg mgikg mgikg mgikg mgikg	With inference to IEC 623212008, GC-MS With inference to IEC 623212008, GC-MS	5 5 5 5 5 5 5 5 5 5 5 5	N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D.
	Monobromobiphenyl Dibromobiphenyl Tribromobiphenyl Tetrabromobiphenyl Pentabromobiphenyl Hexabromobiphenyl Heptabromobiphenyl Octabromobiphenyl Nonabromobiphenyl		mgikg mgikg mgikg mgikg mgikg mgikg mgikg mgikg mgikg	With inference to EC 6232:2008. GC-MS With inference to EC 6232:2008. GC-MS	5 5 5 5 5 5 5 5 5 5 5 5 5 5	N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D.
Dibromodiphenyl ether mg/kg With reference to IEC 62321:2008, GC-MS 5 N.I	Monobromobiphenyl Dibromobiphenyl Tribromobiphenyl Tetrabromobiphenyl Pentabromobiphenyl Hexabromobiphenyl Octabromobiphenyl Docabromobiphenyl Decabromobiphenyl		mgikg mgikg mgikg mgikg mgikg mgikg mgikg mgikg mgikg	With inference to IEC 623212008, GC-MS With inference to IEC 623212008, GC-MS	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D.
Telescond alter With reference to IEC 62221-2009 GC MS & NU	Monobromobiphenyl Disromobiphenyl Tribromobiphenyl Tetrabromobiphenyl Pentabromobiphenyl Hexabromobiphenyl Octabromobiphenyl Decabromobiphenyl Monobromobiphenyl		mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	We reference to EC 2212 2006, CGAB With reference to EC 2212 2006, CGAB	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D.

Tetrabromodiphenyl ether mg/kg With reference to IEC 62321:2008, GC-With reference to IEC 62321:2008, GC-MS Pentabromodiphenyl ether mg/kg nodiphenyl ether mg/kg With reference to IEC 62321:2008, GC-MS eptabromodiphenyl ethe With reference to IEC 62321:2008, GC-MS mg/kg ctabromodiphenyl ether mg/kg With reference to IEC 62321:2008, GC-MS phenyl eth mg/kg noe to IEC 62321:2008. GC-MS (1) N.D. = Not detected.(<MDL) (2) mg/kg = ppm (3) MDL = Method Detection Limit (4) - No regulation (5) Negative = Undetectable / Positive = Detectable

* = Qualitative analysis (No Unit) = Boiling-water-extraction:

Commig-water-exiactoric.
 Negative = Absence of Cr//I coating
 Positive = Presence of Cr//I coating, the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

SGS Test Report

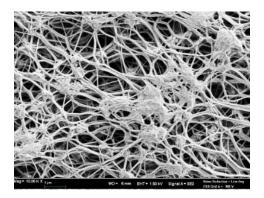


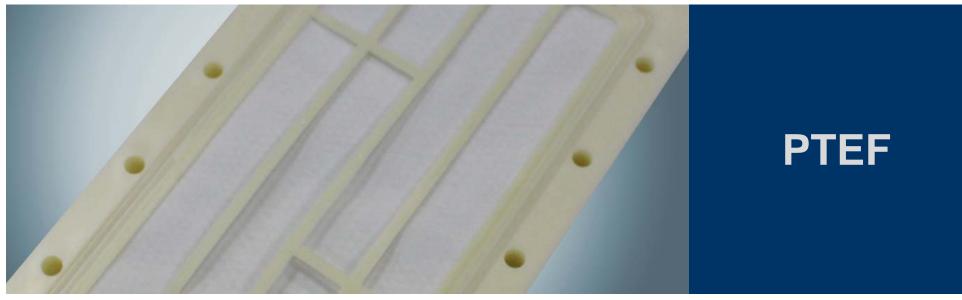
ION EXCHANGE MEMBRANE

Ion Exchange Membrane

First, PTFE offers excellent chemical resistance. POREFLON is chemically stable and does not degrade when exposed to virtually all chemicals. Second, POREFLON is extremely tough and thus has a long service life. Third, POREFLON is highly permeable to water thanks to its high porosity.

The Illustration of POREFLON shows the microscopic structure of our POREFLON products. The white area is made of PTFE fibers. The black parts represent voids, or pores. The ratio of pore spaces to the total volume is referred to as the porosity. Without strength limitations and other restrictions, the porosity of POREFLON can be increased up to around 90%. A higher porosity implies less resistance to the passage of water and translates into higher water permeability.





Safety Ion Exchange Membrane

Test Result(s)

PART NAME No.1

: WHITE SHEET

Test Item(s)	Unit	Method	MDL	Result
	Onit	Metriod	MDL	No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.



Test Report	No. : CE/2015/B5119	Date : 2015/12/02	Page: 2 of 6
SUMITOMO ELECTRIC FINE	POLYMER, INC. ATORI-CHO SENNAN-GUN, OS	SAKA JAPAN	

Test Result(s)

Test Item(s)	Unit	Method	MDL	Result No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.
Sum of PBBs	mg/kg			n.d.
Monobromobiphenyl	mg/kg	1	5	n.d.
Dibromobiphenyl	mg/kg	1 1	5	n.d.
Tribromobiphenyl	mg/kg	1 6	5	n.d.
Tetrabromobiphenyl	mg/kg	1 6	5	n.d.
Pentabromobiphenyl	mg/kg	1 [5	n.d.
Hexabromobiphenyl	mg/kg		5	n.d.
Heptabromobiphenyl	mg/kg		5	n.d.
Octabromobiphenyl	mg/kg	1 [5	n.d.
Nonabromobiphenyl	mg/kg	1 6	5	n.d.
Decabromobiphenyl	mg/kg	With reference to IEC 62321-6: 2015	5	n.d.
Sum of PBDEs	mg/kg	and performed by GC/MS.	-	n.d.
Monobromodiphenyl ether	mg/kg	1 F	5	n.d.
Dibromodiphenyl ether	mg/kg		5	n.d.
Tribromodiphenyl ether	mg/kg] [5	n.d.
Tetrabromodiphenyl ether	mg/kg	1 -	5	n.d.
Pentabromodiphenyl ether	mg/kg	1	5	n.d.
Hexabromodiphenyl ether	mg/kg	1 F	5	n.d.
Heptabromodiphenyl ether	mg/kg	1 -	5	n.d.
Octabromodiphenyl ether	mg/kg	1 – – – – – – – – – – – – – – – – – – –	5	n.d.
Nonabromodiphenyl ether	mg/kg	1 F	5	n.d.
Decabromodiphenyl ether	mg/kg	1	5	n.d.



SAFETY PLASTIC

Safety Plastic Materials

Heavy Metals

Test Items	Results	MDL	Test Method
Pb	ND	5	
Cd	ND	2	ICP/OES, IEC 62321-5:2013
Cr	ND	2	
Hg	ND	1	Direct Mercury Analyzer, IEC 62321-4:2013

 Market
 EG1 (11)

 LG CHERICAL LT
 20 v000 0000, v000, v000, s000L, 100, 27 100;

 JU V000 0000, v000, v000, s000L, 100, 27 100;
 30 v000 0000, v000, v000, 20 v00, 100, 20 v00;

 H112 (LF)
 Active of the second of the s

Unit : mg/kg

